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MODERN SCIENTIFIC MATERIALISM.

NOTHING is more strange than the incessant reproduction of old thoughts under the guise of new and advanced opinions. It would seem as if the human mind, with all its restless activity, were destined to revolve in an endless circle. Its progress is marked by many changes and discoveries; it sees and understands far more clearly the facts that lie along the line of its route, and the modes or laws under which these facts occur; but this route in its higher levels always returns upon itself. Nature and all its secrets become better known, and the powers of Nature are brought more under human control; but the sources of Nature and life and thought—all the ultimate problems of being—never become more clearly intelligible. Not only so, but the last efforts of human reasoning on these subjects are even as the first. Differing in form, and even sometimes not greatly in form, they are in substance the same. Bold as the course of scientific adventure

has seemed for a time, it ends very much as it began; and men of the nineteenth century look over the same abysses of speculation as did their forefathers thousands of years before. No philosophy of Theism can be said to have advanced beyond the Book of Job; and Professor Tyndall, addressing the world from the throne of modern science—which the chair of the British Association ought to be—repeats the thoughts of Democritus and Epicurus, as the last guesses of the modern scientific mind.

Professor Tyndall is well known as a clever and eloquent lecturer on scientific subjects. He has occupied himself with the popular exposition of science; and whatever doubts may be expressed of the solidity of his acquirements and the soundness and sobriety of his knowledge, none can well question that he has succeeded brilliantly in his chosen line. Both in this country and in America vast audiences have listened with enthusiasm to his ex-

positions; and the wide-spreading interest in scientific education is largely indebted to his activity and zeal.

It is not our present purpose to enter upon any estimate of Dr. Tyndall's position as a man of science. The real or permanent value of his scientific labours are beyond our scope. But when he comes forth from his lecture-room to address the world on those old and great subjects which lie at the foundation of all human knowledge and belief, his utterances necessarily provoke criticism. Not content with the function of expositor, he has again, as occasionally before, affected the rôle of Prophet, and invited men to look beyond the facts and laws of science to the origin of things in its highest sense.

It may be questioned whether Nature has fitted him for this higher rôle. A man may have a keen and bright intelligence eminently fitted for scientific observation and discovery, and a fertile and lucid power of exposition, and yet no gifts of speculation or prophetic depth. The very keenness of vision which traverses rapidly the superficialities of things, often becomes blunted when trying to penetrate below the surface. The audacity which ministers to success in experiment often over-leaps itself in the task of thought. Certainly neither Dr. Tyndall nor any of his school are likely to suffer from any modesty of effort. If they do not scale the barriers which have hitherto confined human knowledge, it will not be because they have shrunk from assailing them. One remembers an old story of Newton, in the plenitude of his powers and of his marvellous discoveries, confessing to his immeasurable ignorance; comparing himself to a child who had only gathered a few pebbles on the shore of a boundless sea. This is possibly a myth, like others of those ages of reverence which have long since gone. Our modern scientists (as it is the fashion to call them) are certainly not animated by any such spirit of modest humility. They rejoice in the great achievements of the scientific mind, and laud and magnify their own share in them. All "religious theories" must be brought to their lecture-rooms and tested. We do not quarrel with the pre-eminence thus claimed, for science. But the spirit in which the claim is made is hardly a philosophical, and still less a religious spirit. Religion is, after all, a great fact in human

life and history—as great as any with which science can deal. It is the highest of human experiences, and should never be approached without something of the reverence, and sense of mystery, and tenderness, and depth of insight which belong to its essential nature. It is a great thing, no doubt, to extend the boundaries of science, and to apply its verifying tests to the explanation of all phenomena; but it is also a serious thing to meddle rashly with the foundations of human belief and society, especially when one has nothing better to suggest than the old guesses of a philosophy which has more than once failed to satisfy even the intellectual aspirations of mankind.

Particularly it must be questioned whether the position temporarily occupied by Professor Tyndall was an appropriate one for the ventilation of materialistic theories. The British Association has outlived the early ridicule with which its annual meetings were greeted, and has gathered to itself the mass of scientific workers in the three countries. It is a representative institution, and its annual President ought to bear a representative character. His private religious opinions, or lack of religious opinions, are something with which the Association has nothing to do; and there is a degree of impertinence in the obtrusion on such an occasion of the "confession," whether of a new or an old faith. Men do not expect to have their religious convictions either helped or hindered at the British Association, and it is not becoming that they should have to complain of the President's address as disturbing their customary tone of religious thought. If they wished to go into fundamental questions of cosmical origin, and the right which the idea of a divine Mind rather than mere Force has to stand at the head of all things, they would prefer, or at least all sensible men would prefer, leisure of inquiry and of interrogation to such questions. The chair of the British Association, no less than the Christian pulpit, offers no opportunity of reply. It is a place of privilege, and every such place has its decent reserves as well as its duties. Professor Huxley, who has shown his prophetic aspirations no less than Professor Tyndall, and a considerably deeper capacity of treating both philosophical and religious questions, wisely abstained as its President from turning the British Associa-

tion into a propaganda of scientific belief or no-belief. He spoke with authority on the progress of a most interesting branch of science, to the culture of which he had devoted himself. It would have been well, we think, if Professor Tyndall had followed his example, for the sake both of his own reputation and of the reputation of the British Association.

For, after all, the British Association, while it has survived ridicule, and no doubt worked its way into some real function of usefulness in the promotion of science, is not without its ridiculous side. Like every other popular institution, it has gathered to itself not only wise and able workers in science, but many of those spurious theorists, and vague intellectual fanatics, who are constantly seeking an opportunity of presenting themselves before the public. It has its crowds of hangers-on who know little of science, and not much of anything else, but who find its Sections an appropriate sphere for their windy declamation on all subjects which can possibly be brought within their scope. These are the devotees of what is known as the Modern Spirit, waiting with greedy ears upon the utterances of its apostles and prophets, and ready to catch at any sound of scepticism as a breath of life. It is a strange phenomenon, this enthusiasm of disbelief, which is in the air of our time, and the rush which so many minds are making towards negations of some kind or another. There is nothing apparently so difficult for men as to stand alone, and calmly inquire into the truth of great questions. But few men, in point of fact, are fitted by native strength of mind or training to face such questions themselves. They are either scared by them, and so revert to some blind form of faith, or vaguely fascinated by them, and ready to take up with the first daring solution that comes in their way. The latter class of enthusiasts are apt to fancy themselves independent thinkers, because they go with the new spirit of the times, and throw off so readily the garments of their former profession. But, in point of fact, they are often more bigoted and slavish in thought than the blindest partisans of an ancient faith. Men and women who profess their inability to believe anything their fathers did, "look up," and feign to be fed with the emptiest generalisations of a pseudo-

science. They are disciples of authority as utterly as those who are willing to abjure all science at the bidding of a supposed supernatural voice.

It is a bad thing in itself, and it is bad for the British Association, to minister to the crude appetites of these neophytes of the Modern Spirit, who have laid aside religion without any capacity of rational thought on their own behalf. Dr. Tyndall, in his better moments, can hardly be gratified by the enthusiasm of such disciples; and yet it may be said that they are the only class to whom such an address as his would be perfectly welcome. His more thoughtful hearers might be charmed by its eloquence, and the brilliant clearness and rapid ease of its diction here and there; but they must, at the same time, have been pained by its one-sidedness and superficiality, and the inconclusive vanity of its results. To them it could be no revelation to have all things traced to a material origin, on the supposition of matter being endowed with all possible potencies of life. On such a supposition hardly anything remains to be explained, only that it is as easy to make an hypothesis on one side as the other, and the hypothesis of the materialist is at least as unverifiable as that of the theist. Dr. Tyndall himself, no doubt, knows this, and the difficulties which beset his own theory no less than all theories on the subject. But he ought to have remembered that there were many of his hearers who could receive the theory on trust from him, as a sort of temporary Pope of science; and that the last thing any really scientific man should wish to encourage is that species of presumptuous ignorance which mistakes hypothesis for fact, and "guesses after truth" for the truth itself. Few things are more intolerable than the confidence of ignorance on any subject; but the confidence of an ignorance that thinks itself in the front of knowledge, because it has learned the most recent nomenclature of scientific pretension, is something from which all wise men would shrink, and of which all modest men feel ashamed.

But it is necessary to look more carefully at Professor Tyndall's address. Our criticism will be better applied when we have submitted its main points to the reconsideration of our readers. It is only fair that we should hear him speak for himself, and with the force due to the

order and connection in which he has himself set forth his thoughts. His address is partly historical and partly argumentative. It is written throughout with great clearness, and a brilliant lightness and expressiveness of touch of which the author has frequently shown himself master; and yet, as a whole, there is a lack of coherence and higher order of ideas in it. He glances from topic to topic with great adroitness, and mixes up history with argument, and argument with history, in ingenious combination: but neither is the history accurate or exhaustive, nor the argument carried out with consistency and force. It is possible, therefore, to mistake his meaning here and there, and the exact conclusions to which he points; but it is hardly possible to misunderstand the drift of his thought, and the antagonism which he everywhere implies betwixt science and religion, or, at least, religion in any fashion such as men have hitherto been accustomed to receive it. It will be our care in the sequel to show that he, as well as his whole school, greatly exaggerate this antagonism, and, in fact, only impart any reality to it by perverting theological conceptions on the one hand, and, on the other hand, claiming for science what can never come within its sphere.

Dr. Tyndall's address strikes, in its very opening sentences, the keynote of this alleged opposition betwixt science and religion. "An impulse inherent in primeval man," he says, "turned his thoughts and questionings betimes towards the sources of natural phenomena. The same impulse, inherited and intensified, is the spur of scientific action to-day. Determined by it, by a process of abstraction from experience, we form physical theories which lie beyond the pale of experience, but which satisfy the desire of the mind to see every natural occurrence resting upon a cause. In forming their notions of the origin of things, our earliest historic (and doubtless, we might add, our prehistoric) ancestors pursued, as far as their intelligence permitted, the same course. They also fell back upon experience, but with this difference—that the particular experiences which furnished the *weft* and *woof* of their theories were drawn, not from the study of nature, but from what lay much closer to them—the observation of men. Their theories, accordingly, took an anthropomorphic form. To supersensual

beings, which, 'however potent and invisible, were nothing but a species of human creatures, perhaps raised from among mankind, and retaining all human passions and appetites,' were handed over the rule and governance of natural phenomena."

The words marked as a quotation in this paragraph are from the third section of Hume's 'Natural History of Religion.' The object which Hume has in view is not exactly that professed by Professor Tyndall; yet the language of the great sceptic of the eighteenth century naturally comes to the assistance of his followers in the nineteenth. It is singular, indeed, how all the most characteristic ideas of modern positive thought were anticipated by Hume, and not merely in vague hint, but in clearer and more outspoken words than are now frequently used. All the prevailing talk as to *anthropomorphism* is merely an echo of Hume, or of the sceptical Philo, who may be supposed to represent him in the 'Dialogues concerning Natural Religion.' In the *Essay* from which the above quotation is made, he speaks "of the universal tendency among mankind to conceive all beings like themselves, and to transfer to any object those qualities with which they are familiarly acquainted."* He is everywhere full of the modern conception of mind as the mere efflux of Nature, just as "heat or cold, attraction or repulsion," or any other phenomenon which falls "under daily observation."† Nay, he is the noted precursor of that very tone of condescension as to religion which is so common to the present school, and which appears with such disagreeable emphasis in the close of Dr. Tyndall's address—the tone which allows it a subjective validity in the region of faith or emotion, but no objective validity in the truth of things. It is very natural, therefore, to find the President of the British Association leaning upon the arm of the good-natured and keen-witted Scotch philosopher, who has done so much of the work of thought for our modern philosophers before they were born.

All the same, Professor Tyndall hardly makes a fair use of the quotation of Hume. Hume is writing of the origin of

* Sect. iii.

† Dialogues concerning Natural Religion, Part ii.

religion, and not of supposed theories of "the origin of things." The origin of religion, he maintains, is not to be sought in the contemplation of natural phenomena—for such a contemplation could hardly fail to lead men to the conception of a universal cause, or "of one single being who bestowed existence and order on this vast machine, and adjusted all its parts according to one regular plan or connected system. . . . All things," he adds, "in the universe are evidently of a piece. Everything is adjusted to everything. One design prevails throughout the whole. And this uniformity leads the mind to acknowledge one author."* It is not the observation of nature, but of human life in its thousand accidents and variations, which leads men to the conception of a 'mob of gods' invested with the governance of the world. Whether Hume's theory be correct or not, is nothing to the point. It is a theory of the origin of religion in man's heart that he is in quest of, and not a theory of man's earliest thoughts about natural phenomena.

While these thoughts, according to our lecturer, necessarily took at first 'an anthropomorphic form,' there yet rose, "far in the depths of history, men of exceptional power" who rejected anthropomorphic notions, and sought "to connect natural phenomena with their physical principles." And prior even to such mental efforts men's thoughts were stimulated by commerce and travel; and "in those regions where the commercial aristocracy of ancient Greece mingled with its Eastern neighbors, the sciences were born." A quotation from Euripides follows standing on the same page of Hume with the sentence already quoted, and descriptive of the caprices practised by the popular deities in order that man may worship them the more. This was "the state of things to be displaced," says Dr. Tyndall, by the progress of science, which "demands the radical extirpation of caprice, and the absolute reliance upon law in Nature."

* *Natural History of Religion*, sect. ii. Here, as in many other places, Hume's theism may be said to be ostentatious. And it was probably sincere. While the chief author of many of the ideas which have been applied by the modern philosophy to sap the foundations of theism, he cannot be said himself to have abandoned the theistic position, or at least he never professes to have done so.

Among the great men who lead in this process of scientific extirpation, Democritus stands pre-eminent. Few men "have been so despitefully used by history," under the name of the "laughing philosopher." But his true greatness was long since seen by Bacon, who "considered him to be a man of weightier metal than either Plato or Aristotle, though their philosophy was noised and celebrated in the schools amid the din and pomp of professors."

In his account of Democritus, Professor Tyndall frankly expresses his obligations to Lange's 'History of Materialism'—"a work," he says, "to the spirit and letter of which I am equally indebted." He may well make this confession, for he can hardly be said in this part of his address to do more than repeat—no doubt in his own flowing language—Lange's description and analysis of the Atomic Philosophy. His summary of its principles in the fourth paragraph is little else than a translation from Lange, although with some variety in the order of the six propositions into which the summary is thrown in both cases—the combination of two of Lange's propositions into one, and the addition of a well-known principle elsewhere derived by our lecturer. The principles as given him by the latter are briefly these: 1. From nothing comes nothing. Nothing that exists can be destroyed. All changes are due to the combination and separation of molecules. 2. Nothing happens by chance. Every occurrence has its cause from which it follows by necessity. 3. The only existing things are the atoms and empty space; all else is mere opinion. 4. The atoms are infinite in number, and infinitely various in form; they strike together, and the lateral motions and whirlings which thus arise are the beginnings of the worlds. 5. The varieties of all things depend upon the varieties of these atoms in number, size, and aggregation. 6. The soul consists of free, smooth, round atoms like those of fire. These are the most mobile of all. They interpenetrate the whole body, and in their motions the phenomena of life arose."

As arranged in the first section of the first book of Lange's work (p. 7, 8), the most important of the Democritian principles stand as follows: 1. The principles of all things are atoms and empty space.

All else is mere opinion. 2. There are infinite worlds in number and extent which continually arise and pass away. 3. Out of nothing comes nothing, and nothing can be destroyed. 4. The atoms are in continual movement, and all changes are to be explained by their combination and separation. 5. The varieties of things depend upon the varieties of their atoms in number and size; originally there is no qualitative difference of atoms. 6. Everything happens through necessity. Final causes are to be rejected."

There is just so much similarity betwixt the two statements as to show how liberally Dr. Tyndall has used Lange, and how truly, according to his own confession, he has "been indebted to the "letter" as well as the spirit of the German historian of Materialism. It would hardly have been worth while to point this out, save that he has borrowed still more largely from another work to which he alludes more than once, but without expressing at large his indebtedness—viz., Dr. Draper's 'History of the Intellectual Development of Europe.' When he drops Lange, he takes up Draper. The former serves as the basis of his address to the close of the paragraphs on Lucretius—the latter as the main source of its subsequent historical analysis, till he leaves the field of history and entertains us with the clever dialogue betwixt Bishop Butler and the disciple of Lucretius. It is not merely that he quotes facts and allusions; but all that he says as to the influence of the Arabian intellect during the middle ages, and "our scientific obligations to the Mahomedans," is almost literally transferred from the sixteenth chapter of Draper's work. The picture of scientific precocity presented by Alhazen, "about A.D. 1100," the contrast betwixt the dirt and stupidity of the medieval Christians, and the "cleanliness, learning, and refinement" of the Moors; and the delicate allusion to "the under-garment of ladies," as retaining its Arab name to this hour,—are all from Draper. Considering how largely our lecturer has used Dr. Draper's work, it is a wonder that its author (who is still living) should not have come in for some of that fulsome eulogy which it is so much the habit of the members of this school to bestow upon one another, and which is so roundly administered in this very address.

We observe that an admirer of Dr. Draper, who has "intimately known his work for ten years," and is greatly gratified by Professor Tyndall's obligations to it, yet expresses his disappointment that his "acknowledgment of them was not fuller, wider, and more emphatic." The paragraphs he adds "on the Arabs and Bruno are almost slavishly recast from Professor Draper's text."* Dr. Tyndall, indeed, expresses his "entire confidence" in Dr. Draper; and he has shown this confidence by the indiscriminate manner in which he has borrowed from him. He could hardly otherwise have adopted so one-sided and superficial an estimate of the Scholastic Philosophy, nor even committed himself to such a bit of learned pleasantry as that about the under-garment of ladies. A glance into Du Cange's Dictionary of Mediæval Latin would have satisfied him that *Camisa* or *Camisia* is of much older use than Dr. Draper or he seems to imagine. The truth is, that Draper's volumes, although not without a certain merit, are not of such solid value as to warrant the use made of them. A President of the British Association should go deeper for his facts and authorities. Hardly "the outcome of vigorous research" themselves, they cannot be the basis of any such research in others. Especially they are deceptive, in their one-sided and unsifted accumulations of details, and their thin and partial vein of generalisation, to one who like Dr. Tyndall has abandoned himself with unreserved faith to their guidance, and simply transferred their generalisations to his pages.

There is nothing more characteristic of the members of the Modern School than the confidence and admiration which they express towards all who agree with them. Names, however unknown or obscurely known, if only associated with some attack on theology, or some advance of materialistic speculation, are brought into the full blaze of applaudive recognition. So far as ancient names are concerned, we do not ourselves much quarrel with this. We are glad to see men like Democritus and Epicurus, and Alhazen and Bruno, receive, it may be, even more than their measure of justice, as some of them may have hitherto received less than this measure. Church writers long had it their

own way, and it is only fair that science should have its turn. Truth is not likely to be advanced, however, by men of science not only vindicating names which they may consider to have been aspersed in the past, but repeating towards others a similar exaggeration of abuse to that which they have deprecated when directed against their own intellectual ancestry. We have no objection to see both Democritus and Epicurus set upon their pedestals; but why should poor Aristotle not only be dethroned from his eminence, but degraded and kicked away in disgrace, like a lad who had got to the top of his class and kept it for years under false pretenses?

"Whewell," says Dr. Tyndall, "refers the errors of Aristotle not to a neglect of facts, but to a 'neglect of the ideas appropriate to the facts; the idea of mechanical cause, which is force, and the substitution of vague or inapplicable notions, involving only relations of space or emotions of wonder.' This is doubtless true; but the word 'neglect' implies mere intellectual misdirection; whereas in Aristotle, as in Goethe, it was not, I believe, misdirection, but *sheer natural incapacity*, which lay at the root of his mistakes. As a physicist, Aristotle displayed what we should consider some of the worst attributes of a modern physical investigator—*indistinctness of ideas, confusion of mind, and a confident use of language which led to the delusive notion that he had really mastered his subject, which he has as yet failed to grasp, even the elements of it. He put words in the place of things, subject in the place of object.*"

This—and there is a good deal more of the same emphasis of abuse bestowed upon the old Stagirite—is hardly decent language in the mouth of a President of the British Association towards one who has so long held such a lofty pre-eminence. There may be good ground for lowering Aristotle from the position of intellectual authority which he has enjoyed almost beyond precedent, and to the disadvantage in many cases of a free and true method of investigation. But a man lives by his excellencies, and not by his faults; and the imperial faculties which in so many departments of knowledge so long swayed the human mind, will not suffer from Dr. Tyndall's aspersion. The true way, of course, to test Aristotle, as well as any ancient name, is not by comparing him with any "modern physical investigators," but with the investigators and thinkers of his own time. Professor Tyndall, it has

been well said, would be at a loss to "offer a shadow of proof that the physical inquiries of the Atomists were conducted on sounder principles than those of the Stagirite—for example, that the arguments of Epicurus for the existence of a vacuum were a whit more satisfactory than the opposite arguments of Aristotle."*

It is curious to trace the revival of the Atomic Philosophy and the rejuvenescence of its great leaders, Democritus and Epicurus, with every repeating wave of materialistic speculation. Some of Dr. Tyndall's auditors probably heard of the philosopher of Abdera for the first time; and many more of them, it is no want of charity to say, had no conception either of his historical position or of his special opinions. Even Dr. Tyndall himself appears to have been somewhat hazy about his position, when he speaks of him in connection with Empedocles, and of the latter noticing a "gap in the doctrine of the former," and striking in to fill it up. The four "rudiments" of Empedocles are generally supposed to represent a prior stage of speculation to the "atoms" of Democritus. To a slip of this kind little importance need be attached. But it is surely absurd for our modern Positive philosophers, with their advanced ideas, to make so much of these ancient names. Even if it were true, that more than two thousand years ago the "doctrine of the 'survival of the fittest,' which in our day, not on the basis of vague conjecture, but of positive knowledge, has been raised to such extraordinary significance, had received at all events partial enunciation"—it would not matter in the least as to the truth of this doctrine, or the truth of the views with which it is associated. If we must discard Plato and Aristotle, we are not likely to shelter ourselves under the cloak of Democritus or Empedocles. Even if the former has been "despitefully used" by history, and we are wrong in regarding him as the "laughing philosopher," at any rate we know little or nothing of his philosophy. For, says Mr. Lewes—whose authority should be congenial to Dr. Tyndall—speaking of the evidence which survives on the subject, it is "so obscure that historians have been at a loss to give it (the system of Demo-

* Letter on Dr. Tyndall's address by Professor Smith Robertson.

critus) its due position in relation to other systems. Reinhold, Brandis, Marbach, and Hermann view him as an Ionian; Buhle and Tenneman, as an Eleatic; Hegel, as the successor of Heraclitus; Ritter, as a Sophist; and Zeller, as the precursor of Anaxagoras." Ferrier is inclined to claim him, with all his materialistic tendencies, as in some degree an adherent of the philosophy of the Absolute.* Altogether he is a shadowy figure, and probably owes something of his very vitality to the vagueness of his outline, and the ease with which the modern mind reads its own meaning into him.

In the seventeenth century, when the first wave of materialistic speculation passed over England, it was in the same manner Democritus and Epicurus who came to the front as its representatives. They impersonated to Cudworth and others that "Atheism of Atomicism" with which they fought so stoutly. And what is particularly deserving of notice is, that then, as now, a clear discrimination was made by all enlightened theists betwixt the atomic theory itself as a physical hypothesis, and the materialistic atheism which has been associated with it. The former is a perfectly valid theory, resting on its own evidence, and, according to Cudworth, as ancient as speculation itself. In its true interpretation it professed to explain the *physical origin* of the universe, and nothing else. As such, theism has nothing to say against it. "But Leucippus and Democritus, and after them Protagoras and Epicurus, cast off the spiritual side of the philosophy, and left only the material. They took away the highest part, and left only, as Cudworth says, the 'meanest and lowest.'† In this respect Hobbes followed them in the seventeenth century, just as others are

doing in the nineteenth. It may surely be said that the course of materialistic thought shows little sign of originality. With all the commotion it again makes in our day, it is where it was, standing by the names of Democritus, Epicurus, and Lucretius. It vaunts itself of new and higher methods of investigation, but its theories are not a whit more valid and satisfactory than they were in former centuries; and the powerful language of Lucretius, to which the pen of Tyndall naturally reverts, is probably to this day their best and most felicitous expression.

But, absurd as is all this historical appeal on such a subject, and especially so in a school whose pretension it is to disclaim authority, it is far more excusable than the manner in which living names are used by the same school. Anything more offensive than the vulgar admiration so largely interchanged amongst its members it is hard to imagine, and Dr. Tyndall's address is a conspicuous instance of this offensiveness. His friends and admirers are everywhere bespattered with the most ridiculous praise; while, as if to set off their merits to more advantage, we have a strongly-drawn picture of those "loud-tongued denunciators" who venture to open their lips against the divine claims of science—"rash and ill-informed persons who have been hitherto so ready to *thrust* themselves against every new scientific revelation, lest it should endanger what *they are pleased to consider theirs*." These "objectors," like the noxious thistle which "produces a thistle and nothing else," "scatter their germs abroad, and reproduce a new kind, ready to play again the part of their intellectual progenitors; to show the same virulence, the same ignorance; to achieve for a time the same success; and, finally, to suffer for a time the same inexorable defeat." In comparison with this noxious race stand the enlightened group of Evolutionists, who are now leading the van of the world's thought, with Mr. Charles Darwin and Mr. Herbert Spencer at their head. The former is a man of "profound and synthetic skill," who "shirks no difficulty," and has so "saturated" his subject "with his own thought," that he must "have known better than his critics the weakness as well as the strength of his theory." This, Dr. Tyndall continues, would be of little avail were Mr. Darwin's

* Lewes's Hist. of Philosophy, vol. i. p. 96, 97; Ferrier's Greek Philosophy, p. 163. Some fragments of Democritus survive, gathered from Aristotle and others. They were published at Berlin in 1843 by Mullach, under the title 'Democriti Abderite operum fragmenta.' Of Epicurus the philosophical remains (found among the rolls at Herculaneum, and published by Orelli, 1818) are still more imperfect. Not one of the 300 volumes ascribed to him survives.

† See Rational Theology and Christian Philosophy, vol. ii. p. 249, by Principal Tulloch, where the conflict of materialism with Christian thought in the seventeenth century is fully told.

object "a temporary dialectic victory, instead of the establishment of the truth which he means to be everlasting. But he takes no pains to disguise the weakness he has discovered; nay, he takes every pains to bring it into the strongest light. His vast resources enable him to cope with objections started by himself and others," so as to leave the final impression upon the reader's mind that if they be not completely answered, they certainly are not fatal. "This largeness of knowledge and readiness of resource render Mr. Darwin the most terrible of antagonists. . . . He treats every objection with a soberness and thoroughness which even Bishop Butler might be proud to imitate," and all "without a trace of ill-temper. . . . But though in handling this mighty theme all passion has been stilled, there is an emotion of the intellect incident to the discernment of new truth which often colors and warms the pages of Mr. Darwin."

Mr. Darwin, we trust, has more good sense than to welcome this outburst of nauseous compliment. An accomplished naturalist, with rare powers of observation, and an entertaining and often graceful power of describing the results of his patient and prolonged investigations, he is eminently deserving of all due honor. Whatever merit there may be in the elucidation of the principle of natural selection to which he has devoted his life, let him by all means have it. For ourselves, we believe that the importance of the principle has been greatly exaggerated. But, withal, Mr. Darwin is as little of a philosopher as any man who ever lived. His genius is almost solely a genius of observation and narration, with very faint powers of argument, and, as it appears to us, with almost no depth of synthetic insight. He fails frequently to understand the true meaning of the facts which he describes, and still more frequently the higher conclusions to which they plainly lead. He is weak in logic, and especially weak in every attempt to rise into the higher region which he sometimes essays of abstract discussion; and this mainly owing to that very absorption of mind with his own subject, which Dr. Tyndall considers one of his special merits. If there was no other evidence of all this, and of the confusion of thought which runs through a great deal of Mr. Darwin's most ingenious writ-

ing, the fact that, according to his ardent encomiast, "he needed an expounder," would suffice to prove as much. This expounder he found in Mr. Huxley; and, of course, Dr. Tyndall "knows nothing more admirable in the way of scientific exposition than those early articles of Mr. Huxley on the origin of species." In a similar manner Mr. Herbert Spencer comes in for his share of glory as "the apostle of the understanding,"—"whose ganglia are sometimes the seat of a nascent poetic thrill."

But enough of this. We have taken the pains to point out these features of Dr. Tyndall's address, because they furnish conspicuous evidence of an increasing vice in contemporary literature. It is bad enough that the intellectual world should be divided into so many schools as it is. It narrows intellectual work, and sectarianises culture. Our scientific and literary coteries jostle one another like so many sects in the religious world, each often with a jargon of its own, and a *mission* in comparison with which nothing else is of any consequence. This is sufficiently intolerable; but it is still more intolerable that these coteries should constitute themselves into societies for mutual admiration, and that the Chair of the British Association should not be free from this vulgar species of flattery. If Mr. Darwin, Mr. Herbert Spencer, and others, are really the great philosophers which their friends and admirers declare them to be, then their intellectual character may be safely left to the future. They do not need to have their merits emblazoned as on a sign-post for the applaudive gaze of the "common herd." The Evolutionists should leave this exaggerated talk to others whom they are apt to despise, and remember that the habit of emphasis is seldom the sign of a strong cause, and never the sign of the highest range of intellectual simplicity and power.

We said in the outset that one of the main objects of Dr. Tyndall's address was to emphasise an antagonism betwixt religion and science; and to this more important point we must return. There is a certain sense, indeed, in which he and all his school are deferential towards religion, and even warmly disposed to allow its claims. In the close of his address he adverts to these claims, and makes his meaning sufficiently clear. Religious feeling is an

undoubted element of human nature, and cannot be ignored by any wise observer, no more than "that most powerful of passions—the amatory passion," which Mr. Spencer (of course) has indicated as "antecedent" in its first occurrence "to all relative experiences whatever"! "There are such things woven into the texture of man as the feeling of awe, reverence, and wonder; and not alone the sexual love just referred to, but the love of the beautiful, physical, and moral, in nature, poetry, and art. There is also that deepest feeling which, since the earliest dawn of history, and probably for ages prior to all history, incorporated itself in the religions of the world. *You*, who have escaped from these religions" (the scientific fledglings, we presume, surrounding the Chair of the British Association) "into the high-and-dry light of the intellect, may deride them; but in so doing you deride accidents of form merely, and fail to touch the immovable basis of the religious sentiment in the nature of man. To yield this sentiment reasonable satisfaction is the problem of problems at the present time. And grotesque in relation to scientific culture as many of the religions of the world have been and are—dangerous, nay, destructive to the dearest privileges of freemen as some of them undoubtedly have been, and would, if they could, be again—it will be wise to recognise them as the forms of a force, mischievous if permitted to intrude on the region of knowledge, over which it holds no command, but capable of being guided to noble issues in the region of emotion, which is its proper and elevated sphere." Again, in almost the closing words of the lecture, we are told that "the world embraces not only a Newton but a Shakespeare, not only a Boyle but a Raphael, not only a Kant but a Beethoven, not only a Darwin but a Carlyle. Not in each of these, but in all, is human nature whole. They are not opposed, but supplementary—not mutually exclusive, but reconcilable. And if, unsatisfied with them all, the human mind, with the yearning of a pilgrim for his distant home, will turn to the mystery from which it has emerged, seeking so to fashion it as to give unity to thought and faith; so long as this is done, not only without intolerance or bigotry of any kind, but with the enlightened recognition that ultimate fixity of conception is here unattainable, and that each succeeding age must be left

free to fashion the mystery in accordance with its own needs,—then, in opposition to all the restrictions of Materialism, I would affirm this to be a field for the noblest exercise of what, in contrast with the *knowing* faculties, may be called the *creative* faculties of man. Here, however,"—and with this sentence the original lecture concluded—"I must quit a theme too great for me to handle, but which will be handled by the loftiest minds ages after you and I, like streaks of morning cloud, shall have melted into the infinite azure of the past."

This bit of rhetorical pathos has been removed in the Address as published by Messrs. Longman, and two quotations substituted,—one of them a well-known quotation from Wordsworth's "Tintern Abbey," and the other a remark of Goethe—"Fill thy heart with it, and then receive it as thou wilt."

These extracts are to be taken for what they are worth. They seem to many to mean a great deal—to open, as it were, a new door for religion when the old one has been shut. They are all the more deserving of notice because they contain a certain measure of truth, which every enlightened student of the history of religious opinion recognises. The conclusive beliefs of mankind as to the objects of religion necessarily undergo modification and change 'with each succeeding age.' No one who has pondered the subject would be disposed to claim, in the region of religious knowledge, "an ultimate fixity of conception." But this is something very different from Dr. Tyndall's position. He denies, it is obvious, not only the adequacy of our religious ideas—but that these ideas have any veritable objects at all. Such religion as he would condescendingly make room for is a religion of mere subjectivity, not "permitted" to intrude on the region of knowledge, but confined to its proper sphere of emotion. In short, it is such a religion as *need not, in any sense, be true*—a mere emotional flower on the upspringing growth of humanity, having no deeper root than the vague soil of wonder or of tenderness that lies in human nature, and pointing nowhither,—such a religion, therefore, as may perfectly consist with a doctrine of material evolution. Suppose man, along with all other creatures, to be a mere efflux of nature—to come forth from her teeming womb, as the

universal mother—and you may have such religion as grows with other growths from this fruitful source. Religion, like other things, is a part of the general evolution, and must be allowed its sphere.

It is hardly necessary to say that this is an essentially different conception of religion from that which is embodied in Christianity, and recognised by all Christian Churches. And it is well that the clear distinction betwixt the two systems should be understood. According to the one, man is the mere product of nature—the highest organism which its teeming and fertile power has thrown off in its ever-upward movement. According to the other, he is not only at the head of nature as its highest consequence, but as endowed with a reasonable soul which is the divine image, and not the mere play of natural forces, however subtle or beautiful.

This is the essential question betwixt the two schools, What is man? or, more strictly, What is Mind in man?—a question as old as the dawn of speculation, and which the progress of science, with all its modern pretensions, is no nearer solving than it was centuries ago. This deeper question it is which lies at the root of all the modern contention about the idea of design in nature. If Mind, of course, is merely one form of force amongst many, why should it be conceived of as underlying other forms, and regulating and controlling them? As Hume long ago put it, with a pertinence which none of his followers have rivalled, "What peculiar privilege has this little agitation of the brain, which we call thought, that we must thus make it the model of the universe?"* Why should the source of the universe be conceived as analogous to it rather than to what we call matter? The Modern scientific School has deliberately espoused the rights of matter. Some of its members may say, that in the end they cannot tell whether the source of being is material or spiritual. "Matter may be regarded as a form of thought—thought may be regarded as a property of matter; each statement has a certain relative truth."† But beneath all this indifference and frequent confusion of language, there is an essential discrepancy in the two modes of

thought which touches almost every aspect of life and determines the true character of religion. Dr. Tyndall is well aware of this, and his language leaves no doubt on which side he is proud to rank himself.

In speaking of the origination of life, he says he does not know what Mr. Darwin conclusively thinks of it.

"Whether he does or does not introduce his 'primordial form' by a creative act I do not know. But the question will inevitably be asked, 'How came the form there?' With regard to the diminution of the number of created forms, one does not see that much advantage is gained by it. The anthropomorphism which it seemed the object of Mr. Darwin to set aside, is as firmly associated with the creation of a few forms as with the creation of a multitude. We need clearness and thoroughness here. Two courses, and two only, are possible. Either let us open our doors freely to the conception of creative acts, or, abandoning them, let us radically change our notions of matter. If we look at matter as pictured by Democritus, and as defined for generations in our scientific text-books, the absolute impossibility of any form of life coming out of it would be sufficient to render any other hypothesis preferable; but the definitions of matter given in our text-books were intended to cover the purely physical and mechanical properties; and taught, as we have been, to regard these definitions as complete, we naturally and rightly reject the monstrous notion that out of such matter any form of life could possibly arise. But are the definitions complete? Everything depends upon the answer to be given to this question. Trace the line of life backwards, and see it approaching more and more to what we call the purely physical condition. We reach the *protogenes* of Haeckel, in which we have 'a type distinguishable from a fragment of albumen only by its finely granular character.' Can we pause here? We break a magnet, and find two poles in each of its fragments. We continue the process of breaking; but however small the parts, each carries with it, though enfeebled, the polarity of the whole. And when we break no longer, we prolong the *intellectual vision to the polar molecules*. Are we not urged to do something similar in the case of life? Is there not a temptation to close, to some extent, with Lucretius, when he affirms that, 'Nature is seen to do all things spontaneously of herself without the meddling of the gods'; or with Bruno, when he declares that matter is not 'that mere empty capacity which philosophers have pictured her to be, but the universal mother who brings forth all things as the fruit of her own womb'? The questions here raised are inevitable. They are approaching us with accelerated speed, and it is not a matter of indifference whether they are introduced with reverence or irreverence. Abandoning all disguise, the confession that I feel bound to make before you is, that I prolong the vision backward across the boundary of the experimental evidence, and discern in that

* Dialogues concerning Natural Religion, Part ii.

† Professor Huxley.

matter which we, in our ignorance, and notwithstanding our professed reverence for its Creator, have hitherto covered with opprobrium, the promise and potency of every form and quality of life."

In his Address, as revised and published by himself, Dr. Tyndall has slightly modified the expressions of this significant passage. The conclusion to which he comes no longer appears as "a confession" which he is bound to make, but as "an intellectual necessity." "The vision of the mind" is introduced as authoritatively supplementing "the vision of the eye." And in the end, as throughout, in the description of matter, and its identity with every form of life, there is more the semblance of reasoning, and less the air of a devotee eager to proclaim his gospel of Materialism.

At the best, however, it requires only the most cursory examination of the passage to see how far the lecturer commits himself, and in so doing, how far he exceeds the bounds of science. Plainly, according to his own words, he makes a leap from the visible to the invisible. Whether this leap be made in the strength of faith, or of "an intellectual necessity," is little to the point. Intellectual necessities are as little valid as faith in the school of science or the sphere of mere observation and experiment. "Hypotheses *non fingo*" was the old motto of Physicism; and it is an absolute motto of all true science, discarded as it has been by the Modern School. When once a conclusion is made to hang not on observed facts, and the generalisations in which the facts verify themselves, but upon a vision confessedly prolonged beyond the facts, and crossing the boundary of experimental evidence, it is no longer in any sense a scientific conclusion. It may be as visionary as—it probably is far more so than—any of those theological or so-called anthropomorphic conclusions which are the special bane of Dr. Tyndall. It is indeed a strange outcome of all our boasted scientific progress, before which so many theological spectres are to disappear, and the reign of natural law over all things is to be inaugurated, that its last word for us is as pure an hypothesis as the scholastic or religious genius of past ages ever conceived. What has this genius in its wildest flights ever done more than prolong its vision beyond the

bounds of experience, and confidently apply the suggestions of one department of knowledge to another, or, in the language of the Address, do *something* similar, in the one as in the other? If men have erred in the past, in judging too much of nature by themselves, and investing it with their own limitations, which may be readily admitted, does this warrant the modern physicist in applying to man, or the universe as a whole, a new class of notions derived from the lower fields of nature, and as yet wholly unverified even there? If we are only to get quit of anthropomorphism at the expense of materialism, it is but a sorry exchange. If the Mind which lives in man is to be cast out of nature only that the Force which moves in nature may be transferred in its primordial generality, and without the slightest evidence, to man with all his godlike qualities, then we have no hesitation as to which hypothesis is the grander and even the more scientific of the two.

We have no quarrel with the evolutionary hypothesis in itself. It is an inspiring conception to look upon nature in all its departments as intimately linked together from "primordial germ" to the most fully developed organism—from its rudest speck to its subtlest symmetry of form, or most delicate beauty of color. The idea of *growth* and *vital affinity* is, we readily grant, a higher idea than that of mere *technic* after the manner of men. There is no call upon us to defend the imperfect analogies by which past generations may have pictured to themselves the works of nature. There was no finality, and there may have been something of human pride and prejudice, in these analogies. In so far as science helps us to understand better and more wisely all the activities of the world around us, we are indebted to it. But it will hardly help us to do this, to substitute one unverified hypothesis for another, and to conceive of nature as a great mother self-produced and self-producing, any more than as a great workshop with the traces of artificers' tools all scattered up and down in it.

It is unnecessary to argue at length the unverified character of the *naturalistic* hypothesis of Evolution. It stands confessed in Dr. Tyndall's language. The power of self-transmutation which it attributes to matter is as yet wholly unproved, and nothing can show this more

distinctly than the manner in which he speaks of the subject. With all his wish to read below the lines of nature, and trace them with his mental vision running into one another, he is forced to say that all the evidence hitherto proffered in behalf of "spontaneous generation" can not be accepted. It is all very well to qualify this admission with the statement that there are those who consider this evidence "as perfectly conclusive;" "and that were some of us who have pondered this question to follow a *very common example*, and accept testimony because it falls in with our belief, we also should eagerly close with the evidence referred to." This is but a poor insinuation, and merely shows how impossible it is for men like him to forget the hated and despised theologian who haunts their scientific dreams. Does not this constant hitting at a "sad example" betray their own liability to follow it; and to accept testimony for little other reason than that it falls in with their belief? The present lecture, in its attempt to explain the rise of higher from lower organisms, is not without specimens of this mode of reasoning. Let our physicists forget theology for a little—put it out of sight—as indeed they have nothing to do with it, and science will be all the better, although it may prove less exciting and theorising in their hands.

Withal, Dr. Tyndall clearly admits that the essential point of the origin of life from anything but antecedent life—a point which enters into the very conception of a process of mere natural evolution—remains unproved to all true men of science. "They know full well that the chemist now prepares from inorganic matter a vast array of substances which were some time ago regarded as sole products of vitality. They are intimately acquainted with the structural power of matter as evidenced in the phenomena of crystallisation. They can justify scientifically their *belief* in its *potency*, under the proper conditions to produce organisms. But they will frankly admit their inability to point to any satisfactory experimental proof that life can be developed save from demonstrable antecedent life."

In short, the materialistic conclusion is only to be reached—the leap made—by finding that there is no necessity for infe-

rence or leap at all; or, in other words, by endowing matter from the first with a mysterious potency, capable of all which they attribute to it, but the operation or manifestation of which they have wholly failed to trace. This is really, as we implied at the outset, a begging of the whole question. If matter in reality be something quite different from what we have been hitherto in the habit of thinking it to be; if it include within itself from the beginning not merely *life* but *mind*, then the appearance of both in the course of its development need excite no surprise, and no puzzle. But this is only to say in other words that all force is in its origin material rather than intellectual or spiritual—another unproved hypothesis—and one not only unproved, but at variance with all our best and direst knowledge of the subject. For undoubtedly our primary and our highest analogue of force is not matter, but what we call Mind—the operation of our own self-consciousness. No one has better shown than Dr. Tyndall himself how impossible it is to arrive at this self-consciousness from any form of matter—how vainly we try to account for even the lowest sensation by the mere molecular change in the brain which may be its concomitant. "We can trace the development of a nervous system, and correlate with it the parallel phenomena of sensation and thought. We see with undoubting certainty that they go hand in hand. But we try to soar in a vacuum the moment we seek to comprehend the connection between them." And again elsewhere:—"Granted that a definite thought and a definite molecular action in the brain occur simultaneously, we do not possess the intellectual organs, nor apparently any rudiment of the organs, which would enable us to pass by a process of reasoning from the one to the other." If thought and its material correlate be thus distinct and untranslatable; and if our self-consciousness, standing not indeed apart from matter—for nothing is or can be now known to us apart from it—but majestic in its own supremacy more than any form matter can ever yield to us,—if this be the true source of power within us, and the loftiest conception of it we can have, why should it not also be to us the

* In his paper on "Scientific Materialism."

true image of that which confessedly underlies all things, and moves in all?

"Whose dwelling is the light of setting suns
And the round ocean, and the living air,
And the blue sky, and in the mind of man
A motion and a spirit that impels
All thinking things, all objects of all thought,
And rolls through all things."

These words of Wordsworth, which our lecturer makes use of, appear to apply far more grandly to a great Mind, living in nature, than to matter of whatever promise or potency. If intellectual necessities are to be our guide, the conception of such a Mind is a far stronger necessity to the majority of enlightened intellects in all ages, than any such conception of matter as he eloquently portrays. Why, after all, this strange jealousy of Mind in nature which possesses our Modern School? Why, at the utmost, must we own an inscrutable Potency, and nothing else, working darkly forward through all forms of being? It is the savage who, when he hears the thunder amongst his woods, or looks around upon the riot of nature in a storm, trembles before a mighty force which he fails to understand. It is the Hebrew prophet or Grecian sage, in whose own mind has risen the dawn of creative thought, who clothes the Mystery of power with intelligence and life. If this be anthropomorphism, it is an anthropomorphism which illuminates nature not less than it dignifies man. Man can only think after his own likeness on any subject; and it may be safely left to the future to settle whether the conception of mere Force, inscrutable in its secrecy—an unknown α of which nothing can be affirmed save potentiality—or the conception of an intelligent Will, supreme in foresight as in power, bears least the mark of human weakness.

It is strange that our modern philosophers should crave so much for a material rather than a spiritual origin—and still more strange that they should think the one mode of origin more dignified than the other. It is well to give its due to nature, and to recognise that we are only parts in the great "cosmical life" around us; but it is an odd phase of human vanity which insists on setting physical phenomena above those of the human mind, and seeing in the former, rather than in

the latter, the type of all being. Man may have made too much of himself in the past, but after all he has his rights; and there is surely nothing greater in nature than that Mind which alone understands it, and reduces it to science.

The truth is, that at the bottom of all this modern depreciation of Mind in nature there is a deep-seated hostility not only to the old mechanical conceptions of the universe with which we may so far sympathise, but to the distinctive ideas which lie at the basis of Christianity or any form of spiritual worship. All genuine spiritual reverence lies in the acknowledgment of the affinity of man with God—as being made in the image of God, and having all his true excellence in a growing conformity to the Divine image. The acknowledgment of a Divine Reason alike in man, in the world, and above the world, is a fundamental postulate of true religion. If there is not such a Reason, in obedience to which there is order and happiness, and in disobedience to which there is wrong and misery, the very idea of religion disappears. It is needless to talk of our emotions of wonder and awe and tenderness finding their natural scope, and creating for themselves appropriate vehicles of religious sentiment—changing with the changing thoughts of successive ages. They will do this, no doubt. Religious sentiment will assert itself, do what we will. As Strauss has shown, men will worship the *Universum*—for which Dr. Tyndall's Potential Matter may very well stand—rather than worship nothing at all. But, after all, such nature-worship, or mere emotional piety, does not deserve the name of religion—the essential idea of which is surely to exercise some restraining moral power over man. And how can you get this power, if you have no moral or rational fixity beyond man himself? Laws of nature are very good, and we will always be better to know these laws and to obey them; but what man needs in all his higher being is not merely blind restraint, but moral restraint, and not merely this, but moral education. And how can this come to him except from a Mind above him—an intelligent Being—not in dream or fancy, but in reality at the centre of all things—"who knoweth his frame, and remembereth that he is dust"—in whose living will is the control of all things, and who yet numbereth the hairs

of his head, and "without whom not a sparrow falleth to the ground"?

It should be said, in conclusion, that the antagonism which is everywhere in the writings of Evolutionists, and especially so in Dr. Tyndall's Address, presumed to lie betwixt the idea of evolution and the old idea of design or Mind in nature, is entirely gratuitous. Even if the hypothesis of evolution were proved, and science were able to demonstrate the continuity of nature from first to last, this would not render the idea of a Divine Mind originating nature and working in it through all its evolutions the less tenable. The intellectual necessity which demands a creative mind or an intellectual origin of all things would remain the same. The evidence of what is called design might be modified, but it would not be the less clear and forcible. For it is an essential mistake underlying all the thought of the Modern School that the ideas of design and of continuity or order are incompatible—a mistake arising from the excess of that very anthropomorphism which they so much repudiate in their opponents. Continually they write as if design, intention, purpose, applied to nature, were necessarily of the same tentative and irregular character as the operations of human genius. It is the mere human Mechanician they imagine, and suppose others to imagine, when they speak contemptuously of the theistic conception. But no modern theist makes use of such words in any such sense as they suppose. The idea of design is no longer a mere mechanical idea, as if representing the work of a human Artificer, but simply a synonym for some manifestation of order, or group of regulated or subordinated facts. The notion of design which the Modern School repudiate, was in fact never anything but a caricature. It is impossible for them, or for any, to conceive too grandly of Nature, or of the unbroken harmony and continuity of its movements. The very magnificence of its order is only a further illustration of Divine wisdom; for surely the very thought of a Divine Mind implies the perfection of wisdom, or, in other words, of order, as its expression. The more, therefore, the order of nature is explained and its sequences seen to run into one another with unbroken continuity, only the more and not the less loftily will we be

able to measure the working of the Divine Mind. The necessity which makes us postulate such a Mind has nothing to do with *special phenomena or the modes of their production*. It is a purely rational necessity, the dictate of our highest consciousness and insight into the meaning both of man and of the world around him. The intellectual compulsion which forces Dr. Tyndall across the boundary of experimental evidence to "discern in nature the promise and potency of all terrestrial life" appears to us far less reasonable or well founded than that which has forced so many of the highest and most philosophical intellects of all ages to recognise this promise and potency—not in matter, but in Mind. And, this recognition once made, the mere modes of natural phenomena are of no consequence. They may be after the manner of special contrivance or of continuous development—it matters not. Religion has no concern with any mere physical theories of the origin of the universe. It has no quarrel, or ought to have none, with either atomism or evolution when kept within their proper sphere. So Cudworth announced long ago. Nothing within the province of nature, no change in the manner in which science comes to view its operations, affects the primal thought. Mind is there; as "the light of all our seeing," whether nature works, or rather is worked, by evolution or by special fiat. Science is free to reveal its plans, to modify our notions of its plans, and to exalt them as it can; but the mere fact that they are plans, under any mode of conception, is the witness to our minds of another Mind behind all. Mind is, in short, the synonym of order everywhere—it matters not what may be the special form of that order.

It would be well if both our scientific men and our theologians would see and acknowledge that more plainly. It clears for the one the whole province of nature to investigate as they will—to unfold and explain as they can. It would ease the other from all apprehension of the progress of science. Nothing in that progress can ever touch the great conclusions of religion, which take their rise in a wholly different sphere, and find all their life and strength elsewhere. In so far as theology in the past may have intruded upon science, and refused its claims of

investigation and of judgment in the domain of nature, theology was in error; and it ought to be grateful rather than recriminatory that science has taught it its error. At the same time, science need hardly harp, as with Dr. Tyndall it does, over the old strain of persecution. It is time to forget old conflicts which all wise thinkers have abandoned; and it is hardly a sign of that healthy life which he and others proclaim as the chief characteristic of the modern giant, rejoicing as a strong man to run his race—to have such a plaint made over its old sorrows. Dr. Tyndall knows well enough that the days of persecution have ended *on the side of religion*. It is not from the theologian that danger is any longer to be apprehended in that direction. Let him pursue his investigations without fear or alarm. But let him also bear in mind that if science has her rights, so has religion, and that the great ideas which lie at the foundation of all religion are unspeakably precious to many minds no less enlightened than his own, if not exactly after his fashion of enlightenment. What such minds resent in his Address is not, what he seems to think, any free handling of old ideas, so far as they come legitimately within the range of science—but the constant insinuation that these new conceptions of science are at variance with the old truths of religion, or with the truths of a Personal God and of immortality. Dr. Tyndall may be able to conceive of religion apart from these truths. He may or may not himself be a materialistic atheist. We are glad to see that he disavows the charge in the preface which he has published to his Address. We have certainly not made it against him. Nor is it, let us say, of consequence what Dr. Tyndall's own views of religion are. This is a point quite beside the pur-

pose. If he has, like other men, his "times of weakness and of doubt," and again his "times of strength and of conviction"—of healthier thought when the doctrine of "material atheism" seems to fall away from him—this is his own concern. And we should deem it impertinent to obtrude upon either his darker or his brighter hours. *Sursum corda*, we might say to him, by way of brotherly encouragement, but nothing more. What we and the public have to do with are not Dr. Tyndall's moods of mind, nor his personal creed, but his treatment of grave questions in the name of science. That treatment, in our judgment, and in the judgment of many besides, has been neither dignified nor just. It has meddled with much which lay quite outside his province, and upon which science, following its only true methods, can never be able to pronounce. It has been, if not incompetent, yet highly inadequate and unphilosophical, constantly suggesting what it has not proved, and leading, without excuse, the thoughts of his hearers towards wild negations—hanging out, in short, old rags of Democritism as if they were new flags of scientific triumph.

It is very easy for Dr. Tyndall to speak of the fierceness of his critics, and to give them, from his scornful isolation, "the retort courteous." It is always easy to be mild when one cares little about a matter; but the deeper feeling, he may be sure, which has been called forth by his Address, is one of regret that he should have used so ill a great opportunity, and in the name of the British Association said so much which can neither do honor to that Association, nor to the cause of science with which it is identified.—*Blackwood's Magazine*.

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. SAXON STUDIES.

BY JULIAN HAWTHORNE.

I. DRESDEN ENVIRONS.

1.

THE capital of Saxony, although not devoid of some pleasant interior features, improves, like the Past, as we walk away from it; until, seen from a certain distance, it acquires a smack of Flo-

rence. But cross this line in either direction, and the charm begins to wane. Here erects itself a moral barrier, which the temperate traveller should not transgress. A like mystic circle of greatest enjoyment surrounds all delights; though, unfortunately, we are aware of it only after it has been overpassed. The

right perception of mutual distances is a Philosopher's Stone, for which the wise, from Solomon down, have been experimenting.

The true end of travel is, to reconcile us to our homes. We study foreign countries and customs, not for their intrinsic sake, but in order to compare them disadvantageously with our own: and thus the mere cosmopolitan misses more than he gains. But man's eyesight sharpens as his intellect expands, and he begins to hold aloof from his surroundings. The tendency is not an unhealthy one, and, had Paradise never been lost, we should scarce have heard so much about its attractions. Lovers, it is true, appear to prefer contact to vision; but hearts—and sweet-hearts—see with some faculty transcending ordinary eyesight, and unattainable by commonplace travellers. Nevertheless, we shall do wisely, on starting out into the world, not quite to disencumber ourselves of our affectional luggage. It restrains too extended wanderings, and tempers glances else too keen for perfect truth.

As for Dresden, I think its main charm lurks in the towers of its churches and palaces. They elevate the city's outline and make it seductive: albeit thereby somewhat falsifying its true character. Dresden is less romantic than the promise of its spires: for that matter, it is doubtful whether any city could maintain the standard of a cluster of minarets. Surely, the veriest atheist—if there stir within him any vestige of what less rational beings call a soul—must bless eternal Nothingness that superstition still puts steeples on her churches. Religion may be folly, but all creeds admit the beauty of a dome. It gives unlimited enjoyment, and covers a multitude of sins. What is there in this upward-tapering, slender-pointing, worse than practically useless structure, that so ensnares the fancy? Certainly, a spire is an outrage to logic and to common sense. Yet has the practice of building them outlived many a seeming-wiser custom, and will, I trust, be one of the latest-cured follies of mankind. The idea was first, perhaps, suggested by an aspiring lamp-flame; and it may continue in vogue so long as fire—and that finer fire we call soul—tends heavenward.

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At all events, had I a grudge against Dresden, with power to back it, I would overthrow her towers. Had they never been erected, the city would to-day have been unknown. The traveller, downward-gazing from yonder long-backed hill, and beholding a flattened swarm of mean-featured houses spreading dingily on both sides of a muddy river, would have hastened on to carry fame and fortune elsewhere. Not here had the Sistine Madonna chosen her abode.

But, as it is, these dusky minarets are loadstones whose attraction it is not easy to resist. In absence, they rise in memory and woo us back. Nevertheless, if we have once escaped, we shall do wisely to revisit them no more. The tall pinnacles lose nothing in the light of recollection; rather, a second look would find them less lofty and refined than at first. Beautiful were they as we gazed upon them; but perfect, only when we have turned away.

II.

From the summit of this grassy upland we may see the city lie below us in the broad and shallow valley through which the Elbe prolongs a lazy S. Under the influence of the early sunbeams, a thin brown mist rises above the red-tiled roofs, and is trailed away by the indolent breeze. This valley is a notable wind-conductor, and many an epidemic has been put to flight by the sturdy northern gales—fortunate medicine for a most constipated system of drainage.

We turn our backs on the city, and ramble countrywards for to-day. We may walk as leisurely as we like, pausing whenever the humor takes us. For my own part, I refuse at the outset to be hurried, or to stick to the main road when the bye-path looks more inviting. The day is before us: and it is better to acquire something of country lore before attempting the city.

As the sun of planets, so is Dresden centre of a spattering of villages. It is observable, that, although the central body is greatly larger, and presumably older than its satellites, yet the latter are more antique in aspect and conservative in character. Like the smallest babies, they have the oldest faces, and are furthest behind the age. Their limited constitutions do not easily assimilate

new food : the short-paced intelligence of the offspring fails to keep pace with the parent's far-striding civilization. Dresden is, at present, not very far behind the age in some respects : it knows something about velocipedes, tramways, and expensive living. But the villages are still early in their eighteenth century. The ignorance of the average Saxon peasant is petrifying—all the more in view of the fact that, of late years, he has begun to learn reading and writing. Such acquirements appear to be a poor gauge of intelligence. Of the march of events—the news of the day—of all such knowledges as the American infant sucks in with the milk from his feeding-bottle—your Saxon peasant has no inkling. Often, he can not tell you the name of the king beneath whose palace walls he lives. A tradition is current that the last king but one (who was safely buried about thirty years ago) still survives in a neighboring castle, a captive to the ambition of his relatives.

In short, like better men than they, when truth is not readily to be had, they swallow lies with at least equal relish. The Saxon mind is capacious of an indefinite amount of information ; but its digestion is out of proportion weak. There is not power to work up the meal of knowledge into the flesh and blood of wisdom. I have observed in the faces of the learned an expression of mental dyspepsia,—bulbous foreheads and dull pale eyes. As for Schiller, Goethe, Heine, and the rest of that giant conclave, they are either not German, or else they are the only true Germans ever born. Immense, truly, seems to be their popularity among their later countrymen : but is the sympathy so officiously asserted, genuine stuff? It sometimes puts me in mind of the reflection of sublimity in mud puddles.

There is, or used to be, a symmetry and consistency about these peasants, unattainable by the more enlightened. They lived near the earth, like plantains ; but their humbleness was compensated by some wholesome qualities. It is uncomfortable to reflect that cultivation will vitiate them—has already begun to do so. Such manure as they are treated to will cause them either to grow rank and monstrous, or to rot away. Broad-based scepticism is some-

times maintained to be better than deep-rooted prejudice ; but it does not seem to withstand storms so well.

If progress must progress with these people, why not a little modify the method? The heart of the peasant is, perhaps, as valid as other men's : but his brain is notably weak. Yet reformers address themselves solely to the latter, and force it to an empty activity. The cone is thus inverted, and the learned peasant topples over. In the best of men, the brain, however large, has always been outweighed by the heart. Were education filtered into the peasant through the latter channel, it could never hurt him. It might work in more slowly, but would always remain pure and sweet, and never overfill 'the vessel.

III.

Barriers against civilisation are rather physical than moral,—a matter of good or bad roads. We need not consult books for the history of past times ; all sages since the Deluge live to-day, if the traveller directs his steps aright. How old is the world? Shall we measure its antiquity by Babylon or Boston? Time sleeps beneath immemorial ruins at one spot, while he mounts the telegraph pole at another.

The Nineteenth Century, accordingly, while it ambles easily down the current of the Elbe, and along the high-roads and railways, seldom exerts itself to climb a hill or wind its way into a sequestered valley. There are retreats but a few miles from Dresden, where still linger the light of centuries sunk beneath the general horizon. The "Guttentag" affords a ready test of the matter : the distribution of this flower of courtesy marks the boundaries of progress. Try yonder peasant, for instance, as he passes us on the road.—Did he stare stolidly at us? or go by, awkwardly unconscious, with averted gaze?—We are at an easy distance from Dresden, and the roads are good. But, did he touch his cap, meet our glance with humble frankness, and speak the "Good-day" with a pleasant gruffness of cordiality?—Alas, poor fellow! he lives in a savage gorge, accessible only by an uneasy footpath. Though he appears scarce thirty, he was born at least one hundred and fifty years ago. He knows nothing about the Neue-Con-

tinental - Pferd - Eisenbahn-Actien - Ge-sellshaft lately started in Dresden. May we not almost say, seeing that he has never breathed our Nineteenth Century air, that he has no real existence at all?

This same flower of courtesy depends for its growth not solely on the locality, however, but somewhat also on the individual. In one and the same household we may meet with it under all conditions of luxuriance or starvation. As a rule, it flourishes best with the very old and with the very young—those who have either lived too long to be affected by modern gospels, or have not yet grown tall enough to reach up to them. It is in the hands of the well-grown youth that the flower is most apt to droop, or wither quite away: they it is who dream most of emigrating to America, and who meantime practise some American virtues in their native cottages. Much unhappiness is no doubt in store for them: but posterity may glorify their stripes with stars.

Their newly gained culture has not yet sunk so deeply into these peasants, however, as to be incapable of occasional disconcertment. If we first salute them, they will almost invariably return our greeting: or the magnet of an overbearing or calmly superior glance will often draw the words from our man, or startle them out of him. For no Saxon, of whatever degree, understands the maintenance of self-respect in the presence of what he fancies a superior power.

In treating of Saxon manners, it might be supposed that the illustrations should be drawn elsewhere than from the peasantry. But I find among them the original forms of many social peculiarities, which, on higher planes, are almost unnoticeable by reason of their conventional dress: conventionalism being the true cloak of invisibility. Superficially, a best-society drawing-room in Germany and in England appear much alike; but go to the corresponding villages, and we see plainly points of difference, which exist no less—although imperceptibly—higher up. The thin, satiny skin of the polished man-of-the-world is a better veil of his soul, than is the canvas-like hide of the coarse-grained laborer.

But, indeed, all Saxons know how to be polite, and often seem to take plea-

sure in elaborate exhibitions of civility. Few things do they enjoy more than to take off their hats, smile, nod, and exclaim "Ja! Ja! Ja!" It is curious and strange to watch the antics of a group of acquaintances who have by chance encountered one another in the street. After a brief but highly animated conversation, they proceed to make their adieux. It is on his powers in this respect that the Saxon chiefly prides himself. Behold, therefore, our friends who stand waving their hats, smiling, nodding, gesticulating, peppering one another with broadsides of Ja's. They become every moment more and more wound-up. Their excitement permeates every part of their bodies, and approaches ecstasy. It resembles the frenzy of Dancing Dervishes, or the more familiar madness of our own Shakers. This is the Saxon's mystic religious dance. To this height of fervor rises the warm-heartedness for which he is noted. Politeness is common in Saxony—provided only that it costs no more than in the proverb.

IV.

American Emerson says, "I have thought a sufficient measure of civilisation is the influence of good women." He is said to be the most popular foreign essayist in Germany; and it is certain that these people are most fond of such literature as is furthest beyond their comprehension. Nevertheless, no true Saxon would subscribe to this particular dogma. For, yonder market-waggon, high-piled with country-produce, and drawn by a woman and a dog tugging on either side of the shaft, while the husband driver walks unencumbered alongside,—is so far from being a singular spectacle that, after now some six years daily familiarity with it, I confess to a difficulty in quite sympathising with the indignation of a new-comer. But, indeed, this is nothing: only, at nightfall, we shall meet the same waggon home-ward-drawn by the same team: and lo! seated upon the empty hampers, smokes serene the man and master of all. Let us be rational: why walk home when our woman and dog are at hand to carry us?

Why do not the woman-emancipationists come to Saxony, and see with their

own eyes what the capacities of the sex actually are? Here women show more strength and endurance than many of their husbands and brothers do. They carry on their broad backs, for miles, heavier weights than I should care to lend my shoulders to. Massive are their legs as the banyan-root; their hips are as the bows of a three-decker. Backs have they like derricks; rough hands like pile-drivers. They wear knee-short skirts, sleeves at elbows, head-kerchiefs. As a rule they possess animal good nature and vacant amiability. But at twenty or twenty-five they are already growing old.—

Growing old, with them, is a painful process, not a graceful one. The reserves of vitality are dry, and the woman's face becomes furrowed, even as the fields she cultivates. Her eyes fade into stolidity and unintelligence. Her mouth seldom smiles. Thirty finds her hollow-cheeked, withered, bony. At fifty—should she live so long—she is in extreme old age. Meanwhile she has been bearing children as plentifully as though that were her sole employment. But such labors secure her scarce a temporary immunity from other toil. I have seen her straining up a long hill, weighted with more burdens than one.—

Pleasanter is it to consider her in the hayfield, before youth has dried up in her. Her plain costume follows her figure closely enough to show to the best advantage its heavy but not unhandsome contours. Seen from a distance, her motions and postures have often an admirable grace. Her limbs observe harmonious lines. In raking, stooping, tossing the hay, her action is supple and easy. As she labors in the sun, she keeps up a continuous good-humored chatter with her companions. Her bare arms and legs are bronzed by summer exposure to heat—and dirt; and her visage is of a color almost Ethiopian. But an American Southerner might see in her more than the dark complexion, to put him in mind of former days and institutions.

The Greeks had slaves who took the edge off the work, but were not intended to bear Grecian children. Saxon slaves are not let off so easily. A nation, whose women keep their houses, saw their wood, cultivate their crops and

carry them to market on their backs, and bear children in season and out of season, may indeed go to war with full ranks, for a time. But what use to conquer the world, if our sons and daughters are to grow up cripples and idiots? For does that pregnant woman whom we saw straining uphill with her heavy basket injure only herself?

I have already remarked that the ground-plan of high society may best be studied in the nearest village; and so the best way to become acquainted with a Saxon lady is to observe her peasant sister who sweats and tugs in fields and on country roads. The spirit of chivalry never thrrove among these people, high or low; what is more serious (and, perhaps, too much so for context so lighted as this), the bulwarks of female chastity, where they exist, are rather mechanical than moral. In Saxony, therefore, suspicion justly has the weight of conviction. The best result of this system is an insecure and exaggerated innocence: the rest needs not further to be enlarged upon.

Women are what men make them; and thus we come back to our Emersonian text. The nation that degrades its women, cuts off the wings and darkens the light which should lift and guide it to an enduring standpoint. I cannot but feel a misgiving about these German triumphs in field and cabinet, when I see men helping themselves before women at table—and elsewhere.

How many of us have dreamt romantically about the ideal German peasant-girl? She appeared to us pretty to the edge of beauty—perhaps a step beyond. She was blue-eyed, and flaxen braids fell over shapely shoulders. Her gown was charmingly caught up at one side; she was often seen with a distaff, and was apt to break out in sunny smiles or pathetic little songs. Goethe and Kaulbach have much to answer for! And yet, among many imperfect *Gretchen*s, I have sometimes fancied that I caught a glimpse of the real, traditional heroine.

Handsome and pretty women are certainly no rarity in Saxony, although few of them can lay claim to an unadulterated Saxon pedigree. We see lovely Austrians, and fascinating Poles and Russians, who delicately smoke cigars in the concert-gardens. But it is hard for

the peasant type to rise higher than comeliness; and it is distressingly apt to be coarse of feature as well as of hand, clumsy of ankle, and more or less wedded to grease and dirt. Good blood shows in the profile; and these young girls, whose full faces are often pleasant and even attractive, have seldom an eloquent contour of nose and mouth. There is sometimes great softness and sweetness of eye; a clear complexion; a pretty roundness of chin and throat. Indeed, I have found scattered through half-a-dozen different villages all the features of the true Gretchen; and once, in an obscure hamlet, whose name I have forgotten, I came unexpectedly upon what seemed a near approach to the mythic being. She was at work on the village pump-handle, and her management of it was full of grace and vigor. She bade me good-morning in a round, melodious voice, and looked healthy, fresh, bright, and almost clean. I gave but one glance, and then a subtle inward monition impelled me to hurry away. For, although a second look might have recognized her as the long-sought one, yet it might have brought disappointment, and, therefore, was too much to risk. Meanwhile so much was gained—I can not say that I have failed to find her.

But this is sentimental nonsense. English, French, Italians, Spaniards, Russians—each and all surpass their German sister in some particular of beauty; and the American, in all combined. Gretchen will always have unlovely hands and shapeless feet; her flaxen braids will be dull and lustreless, and her head will be planed off behind on a line with her ears. This is no anti-climax; for most of the qualities which make a human being humanly interesting, are dependent upon a goodly development of the cerebellum.

V.

We sallied forth this morning in quest of a representative Saxon village; but, save as regards situation, one is as representative as another. The same people inhabit all, and follow the same customs, submit to the same inconveniences, partake of the same ignorance, and are wedded to the same prejudices and superstitions. Moreover, the names of

fifteen out of twenty of these villages end in the same three mystic letters—“itz.” What “itz” signifies I know not; but I should fancy that whoever lives in a community whose name terminates differently would feel like a kind of outlaw or alien. Loschwitz, Blasewitz, Pillnitz, Pulsnitz, Sedlitz, Gorbitz,—all are members of one family, and look, speak, and think in the family way. It is admirable the care they take to post up their names on a signboard at each entrance of the village, doubtless a safeguard against the serious danger of forgetting their own first syllables. Were some mischievous person, while the honest villagers slept, to interchange all their signboards, there would be no hope of their ever identifying themselves again. Perhaps, indeed, they might fail to perceive the alteration. Pillnitz or Pulsnitz—what odds? It can matter little to a pebble what position on the beach it occupies; and I dare say the members of various families might be substituted one for another, and nothing be noticed much out of the way on either side.

Many of these little flocks of houses have settled down from their flight in the realm of thought along the banks of a stream which trickles through a narrow gorge, between low hills. The brook is an important element in the village economy, fulfilling the rather discordant offices of public drain, swill-pail, and wash-tub; and moreover serving as a perennial plaything for quantities of white-headed children and geese. It is walled in with stone; narrow flights of steps lead down at intervals to the water's edge, and here and there miniature bridges span the flood. The water bubbles over a pebbly bottom, varied with bits of broken pottery and cast-away odds-and-ends of the household; once in a while the stream gathers up its strength to turn a sawmill, and anon spreads out to form a shallow basin. Stiff-necked, plaster-faced, the cottages stand in lines on either bank, winking lazily at one another with their old glass eyes, across the narrow intervening space. Above their red-tiled roofs rise the steep hill-ridges, built up in irregular terraces, overgrown with vines or fruit trees. Nobody seems to stay at home except the geese and the babies.

Such little settlements hide in country

depths, whither only grassy lanes and footpaths find their way. Others there are, mere episodes of the high road, dusty, bare, and exposed, with flat views over surrounding plains; with a naked inn—"Gasthaus"—in their midst, where thirsty teamsters halt for beer, and to stare with slow-moving eyes at the pigmy common with its muddy goose-pond, and to pump up unintelligible gutturals at one another. Others, again, are ranged abreast beneath the bluffs on the river bank; a straggling footpath dodges crookedly through them, scrambling here over a front door-step, there crossing a backyard. Women, bare of foot and head, peer curiously forth from low doorways and cramped windows; soiled children stare, a-suck at muddy fingers; there are glimpses of internal economies, rustic meals, withered grandparents who seldom get further than the doorstep; visions of infants nursed and spanked. A strip of grass intervenes between the houses and the Elbe river; through trees we see the down-slipping current, bearing with it interminable rafts and ponderous canal-boats, and sometimes a puffing steamer, with noisy paddle-wheels. At times we skirt along stretches of blind walls, from the chinks of which sprout grass and flowers; and which convey to us an obscure impression of there being grape-vines on the other side of them.

Or, once more, and not least picturously, our village alights on a low hill-top, where trees and houses crowd one another in agreeable contention. The main approach winds snake-like upwards from the grass and brush of the valley, but on reaching the summit splits into hydra heads, each one of which pokes itself into somebody's barnyard or garden, leaving a stranger in some embarrassment as to how to get through the town without unauthorised intrusion on its inhabitants. Besides the main approach, there are clever short-cuts down steep places, sometimes forming into a rude flight of stone steps, anon taking a sudden leap down a high terrace, and finally creeping out through a hole in the hedge, at the bottom. The houses look pretty from below; but after climbing the hill their best charm vanishes, like that of clouds seen at too close quarters. In Saxony, as well as elsewhere, there is a penalty for opening Pandora's box.

VI.

As for the cottages themselves, they are for the most part two-storied boxes, smeared with stucco and gabled with red tiles: thatch being as rare here as it is common in England. In fact, these dwellings are not real cottages, but only small inconvenient houses. They are never allied to their natural surroundings—never look as though they had grown leisurely up from some seed planted aeons ago. They never permit us to mistake them for an immemorial tree-stump or mossy rock, which rustic men have hollowed out, and improved into a home. The oldest of them have a temporary, artificial look, conveying the idea that they have been made somewhere else, and been set down in their present situation quite by accident, to be tried in a new place to-morrow. A Saxon never sees the spot he builds in, but only the thing he builds. German toy-villages, which charmed our childhood, are more accurate copies of the reality than our years of discretion would have supposed. Magnify the toy, or view the reality from a distance, and the two are one and the same.

This unstable impression results from the fact that Saxon souls have no home-instinct. The peasant thinks of his house as a place to sleep in—and to eat in, before and after sleep. He knows no hearth, around which he and his family may sit and chat; instead, there stands a tall glazed earthenware stove, which suggests the idea rather of a refrigerator than of a fire; until we burn our fingers on it; a hypocritical, repellent thing, which would sooner burst than look comfortable. And how can a man converse rationally or affectionately over night, with the woman whom he means to harness to his cart in the morning? His only resource is to go to the inn, and drink flatulent beer in company with a knot of smoky beings like himself. He seldom gets drunk; indeed, I doubt whether the "Einfaches" beer which he affects is capable of producing anything worse than stolid torpidity—which is perhaps not a wholly undesirable condition for a homeless man to be in. On gala-days he drinks and eats more than usual, and sometimes puts on a suit of remarkable black broadcloth—with the

comfortless grandeur thereto appertaining. He plods on foot to the next village, and sits in the "Restauration," or bowls in the alley, or talks crops and prices with his peers. Be that how it may, the gala ends, for him, so soon as he turns his face homewards.

Partly answerable for this barrenness of soul is, no doubt, the form of government, which pokes its clammy, rigid finger into each man's private concerns, till he loses all spirit to be interested in them 'himself. But yet more, must it be said, is it traceable to that cold, profound selfishness which forms the foundation and framework of the national and individual character, in every walk of life: the wretched chill of which must ultimately annul the warmth of the most fervent German eulogist, provided he be bold enough to bring his theoretical enthusiasm to the decisive test of a few years' personal intercourse and conversation with the people.

At this early hour of the day, however, our peasant is off to his work, and we may examine his abode without calling into question the qualities of the owner. It is by no means devoid of ornamentation, both natural and artificial: which, if in harmony with the temporary character of the house itself, is, not the less, often tasteful and pretty. Whenever possible, the house is made the nucleus of a bunch of flowers and verdure. Brightly colored blossoms crowd the narrow windows, winter and summer; and the greater number of the cottages have attached to them tiny gardens—some hardly bigger than large flower-pots—where grow pansies, pinks, marigolds, and roses, "in gaudy profusion. Flower cultivation is a national trait; and I have seen very unaesthetic-looking people plucking wild-flowers in the fields. Wild-flowers are easily obtainable, it is true, but the spirit that uses them is less common. Here seems to be a contradiction, and a pleasant one, in the Saxon peasant's character. We look in vain from his house-windows to those of his face; there are no traces of flowers there; albeit plenty of soil in which to plant them. Nevertheless, were there not germs of grace and beauty somewhere hidden in him, such blossoms would scarcely adorn his outward life.

For my part, I like to believe that the

women thus make amends to themselves, a little, for the moral sterility of their earthly existence. The flowers that we see in their windows may bloom there to a better purpose than elsewhere. Perhaps, too, they may be prophetic as well as emblematic of good.

Besides his flowers, the peasant often drapes the front of his house with a thick green apron of woodbine or grape. The latter is never out of place: but woodbine impresses me as being insincere and artificial—the antipodes of the strong and faithful ivy. It does not cling to its support of itself, but must be fastened up; and a mischievous wind-gust may snatch it from its moorings. It grows rapidly; but its tendrils do not twine round the heart; nor does it endure long enough for the eye to become lovingly familiar with its twists of stem and massings of foliage. Compared with ivy, it is meretricious; flourishes with superficial luxuriance, but has no real pith; makes a gaudy show in autumn; but in winter its splendors fall away, and leave a straggling nakedness. It does not uphold, but is upheld, and must fall when the support is withdrawn. It endures but a few years at best, and dies unlamented, for another may readily be had to fill its place. It has no modesty, but obtrudes itself officiously, flaunting its glossy, fragile leaves with an unbecoming freedom. It lacks the tender traditions which the ivy has. Seen from a distance, an incautious eye might mistake the one for the other; but when I find my ivy turn out woodbine, I feel the same kind of disappointment which follows upon addressing, to a stranger, the sentimental remark intended for a friend.

The grape is, on the whole, perhaps the most suitable vine for cottage purposes, because it has to do with the life of the present; whereas the ivy more resembles a pall than a wedding garment, and is chiefly associated with ruins and crumbling traditions. The grape-vine hangs its shaggy green beard from eaves and window-sills; and, when the fruit is ripe, the cottage seems the realisation of an Arcadian dream of luxury. Howbeit, if we attempt still further to realize our dream by putting forth our hand to pluck and eat,—the awakening comes; for every cluster has a market as well as

an aesthetic value. It is well to be pastoral and romantic, but I must first pay so many groschen for the grapes. Thus is sentiment made ridiculous now-a-days; all the fine pictures have a reverse side, whereon is daubed a grinning caricature named Common Sense, or Practical Experience. Some clever person is almost always at hand to spring this reverse upon us; but not the less, in solitude, or in rare companionship, we will sometimes forget the parody in musing on the poem.

VII.

As at present used in reference to the works of man, picturesque is rather a vague term. If it may not be directly defined as ignorance, it is at least opposed to what is understood as classic beauty. A picturesque house or street is one which, though meant for use, is practically inconvenient to the verge of uselessness. From this point of view, it will be doing no violence to polite usage to describe these Saxon villages as eminently picturesque. The dwellings are seldom so comfortable as a right economy of materials would have allowed; they huddle together irregularly, drawing in their toes, as it were, and ducking their heads between their shoulders. Some few are built of hewn logs, the second story projecting like a ponderous eyebrow; and these have I know not what quaint charm, which distinguishes them from others in the memory. They are more primitive. It is the yoking of poverty with some so-called modern improvements that makes true, unlovable ugliness. Justly to harmonise itself, poverty should wear a garment of antiquity, proportioned to its degree.

The front door is not always the mouth through which proceeds the true utterance of the house; in many it is uniformly closed, and wears an aspect of wooden formality. We behold, on jambs and lintel, an uncouth display of architectural ornamentation; and here are inscribed the date of erection, the name or initials of the founder, and some badly pious motto—a scriptural proverb, or other scrap of religious truism. "Im Gottes Segen ist Alles gelegen," "Wer Gott vertraut hat wohl gebaut," and so on indefinitely. These may be, and I

suppose they generally are, taken as evidences of a childlike simplicity and faith. But I would rather they had been written on the inner side of the lintel. The introduction of God's name to every base occasion is a trait of this people, and crops out in their daily conversation to a degree quite astonishing. It is not a sincere or wholesome practice, rather a kind of religious snobbishness.

Although the front door has not always this pharisaical character, but is sometimes made genial by an ample porch, and worn steps and balusters—yet as a general thing the back door manifests more vitality and frankness. It opens on an unevenly paved court; above, the tiled roof stoops affectionately; here sits the old man with his porcelain pipe, and watches the old woman peeling potatoes; while the baby at their feet is happy with the potato-skins. Here we see the earthen pots and copper kettles of Dutch painters; here detect makeshifts and undress rehearsals. Here is a fine irregularity of light and shade; and, in the heat of summer, a grateful gloom and dampness. That man must be puritanically upright and above-board who never cherished a secret partiality for back-doors. There are easy back-door ways of doing and saying things, such as can never make their appearance on the front doorstep.

The curiosity which may have prompted me to peep into a Saxon farm-yard was never justified by what I saw there. Two sides of the enclosure are bounded by a high blind wall, rough with dirty plaster; the other two, by barns and out-houses. There is always a melancholy excess of space: objects which should be grouped together, languish apart. Here is a pump; in that corner huddles a cart; yonder is a heap of straw. Lonely hens straggle here and there, presided over by an abstracted cock, who never crows. An ill-humored dog barks at me from a distant kennel, and rattles his rusty chain. It is vain to look for the warmly-hospitable atmosphere, for the bustle, the sound, the busy repose that should belong to farm-yards. The ground is roughly paved with cobble stones; infrequent men and women shuffle, wooden-shod, across and along, but I see no one who looks a farmer. The Saxons do not ap-

preciate the earth; they sow without affection, and reap without thankfulness. Their selfish stolidity cannot sympathize with warm-hearted, generous, slow, majestic nature; they grudge the labor of co-operating with her, and would rather steal the milk from her breast, than claim it by the sacred right of children. But though they be sulky, nature never is; she yields nourishment to them as to others; and there is gracious humor in the smile wherewith she hears them grumble at the pain of suckling her.

Hard by the farm-yard are the hillocks and headstones of the village cemetery. Were there any warmth in the dead, they lie close enough here to create a very genial temperature. The monumental devices stand shoulder to shoulder, each striving to outdo its neighbor, either in stylishness or in extravagance of eulogistic inscription. There can be no safer gauge of culture in a people than the aspect of their graves. They bury their bodies out of sight; but their superstition, their vanity, their truth or falsehood,—these nowhere declare themselves so undisguisedly as on the tombstone. We must read the carven inscription, like some kinds of secret writing, between the lines; and how different is the hidden from the ostensible meaning! What traits of character and condition are portrayed in the design, ornament, and material of this last milestone of earthly life! In what a solemn light they stand; and with what eyes must the soul regard them, which looks from beyond the grave! Pitifully awry must the least pretentious appear, from that stand-point; but what of these gilt, gingerbread affairs, with their record of titles and virtues? Green grass is the tombstone which best stands all tests. It tells only of the life which springs from decay.

From of old humorists have made capital of the follies of head-stones; but there is something ghastly in the smile which such jests create. I prefer to let the poor, fantastic records remain in peace, to crumble or endure, as sun and rain may choose. Most of these Saxon memorials are made of wood, garnished with more or less of symbolic atrocity. The graveyard, as a whole, wears an aspect of grisly gaiety, impressing the beholder as a subtle stroke of malig-

nant satire. In the silent sunshine of a summer day, or beneath the yet more voiceless moonlight, the strained discord of the spectacle is protest sufficient against itself.

VIII.

I have already made passing mention of the geese; but they are entitled to more than a brief notice. They constitute a goodly proportion of the village population, and they are invariably at home. When not paddling and gobbling in their mud-puddle, they dawdle in lines along the streets, or anent the back-yards, where may perchance be found some kind of food dear to the goosey heart. There is admirable unanimity in a flock of geese, as though each were magnetically conscious of all his companions' sentiments and emotions. All wish to do the same thing at the same time; and fortunately the conditions of their life permit the indulgence of this desire. Yet is each goose a kingdom to himself; pride waddles in his gait, and unbounded self-complacency wallows with him in the dirt. You may easily put him to flight; but out of countenance—never! So soon as his pursuer's back is turned, the fugitive hisses as briskly as though he had been heroic from the beginning.

There is something very human in their hiss, and in their expression while giving vent to it. I have never heard precisely such a sound from a human being, or seen a human neck stretched in just such a way. But I fancy that many souls, were they visible, would appear not otherwise than as hissing geese; and that the spirit of their speech is a similar sibilation.

Though intolerant of strangers, geese fraternise with their fellow-villagers, albeit never on terms of such familiar confidence as hens maintain. The character of the goose, with its fine distinctions from those of other domestic fowls, has never been sufficiently set forth. The goose should not be made typical of stupidity, save as it may be the essence of stupidity to see all things through the medium of one's self. He is the symbol of the lowest form of egotism: barring that, he is as astute as any animal of his order. I never heard of a pet goose: there seems to be no way of caressing

him, [except to feed him; for though egotists are not as a rule averse to being made much of—as witness cats—yet the goose is too full of himself to care for endearments. Furthermore, his self-conceit is not of a wholesome external character, like that of the turkey or peacock: it subsists but little on the consciousness of outward attractions, but seems to build upon a supposititious mental or moral worth,—with an assurance, ludicrous, yet too human to be agreeable. What causes the goose to bend his head in passing beneath the farm-yard gate, except the persuasion that his towering spirit overtops the world? Unlike that of the eagle, however, the goose's self-esteem has nothing lofty or noble in it: it is the conceit of vulgarity—pride inverted, because based on petty self.

It is agreeable to harmony to observe how constantly the goose affects muddy water. They are the pigs of the bird race. They prefer muddy water, and glory in it. If muddy water be not a good emblem of spiritual uncleanness and perverted truth, I know not where to find a better. The proud severity of swans leads them to pure lakes and streams, and the naïve innocence of the duck attaches him to ponds whose faults are mitigated by duckweed and minnows. But nothing suits the goose so well as a barren mud-puddle. The sleekness of his coat presents a sinister contrast to the undisguised grossness of his interior. He is an epitome of certain human vices; and even when prepared for the table, a slice too much of him fills the soul with heavy disgust.

I once met with a quaint theory, according to which the dumb companions of man were held to be the reflection of his own ruling thoughts and affections. Thus, the character of the savage is revealed in the wild beasts he hunts; that of pastoral nations, in their peaceful flocks; of the chivalrous and warlike races, in their thorough-bred and fiery steeds. As the man's nature changes, so do the animals around him die out or multiply. For every wild beast that becomes extinct, there expires some fierce passion of a human soul. For every dove that coos on the roof, there dwells in some heart a thought of innocence and gentleness:—a pretty fancy, arbitrary at first sight, perhaps, but to a deeper con-

sideration revealing glimpses of a profound inward significance.

How happens it, now, that there should be so many geese in Saxon villages? Geese will grow as readily in one place as another; yet here are twice as many geese, in proportion to the human population, as elsewhere. I fear there must be an occult vein of sympathy between them and their owners, reaching deeper than the flavor of roast goose, or money value, can justify: some mutual consciousness of similar dispositions. Geese, I say, are symbolic of self-seeking, self-glorifying, short-sighted human vanity: and where geese abound, such vices are rife. If this be not the true solution of the mystery, the sole alternative lies in the fact that, at Strasbourg, they make pate-de-fois-gras. In justice to the theory, I must admit that there are at least half as many pigeons as geese in Saxony. These I take pleasure in construing as representatives of the love of mothers for their babies, and the innocent thoughts of the babies themselves. If we must have pies, let us fatten pigeons rather than geese.

IX.

A noticeable quietness pervades these villages; as though they had dropt asleep ages ago, not to awaken in this century at any rate. The houses stand voiceless like empty shells, and the narrow road wanders lonely between them. The inhabitants are abroad—in Dresden, in the fields, wherever their work may have taken them. Within the village limits remain only those who are either too old or too young to be away: these, with the proprietor of the *Gasthaus*, and a shopkeeper or two, are all.

But even were every one at home, we should never see anything resembling the omnipresent activity of a New England or Western village. They are born quiet—these people:—a Saxon baby has but little cry in him, and no persistent noisiness. In infancy he is stiffened out in swaddling clothes, and lives between two feather pillows, like an oyster in his shell: moving only his pale bluish eyes and pasty little fingers. A greasy nursing-bottle is poking itself into his mouth all day long. He has a great, hairless, swelled head, like an inflated bladder. His first appearance out-doors is made

in a basket-waggon, planted neck-deep amidst his pillows; the hood of the waggon being up and closely blue-curtained. Sometimes he rides double, his brother's or sister's head emerging at the opposite end of the little vehicle. They seldom die under this treatment: indeed, even a soul would find difficulty in escaping from beneath those feather pillows, and through the crevices of those close-drawn blue curtains. When they have colic (but they seldom muster energy sufficient), they uplift a meagre cry, as though aware that something of the sort would be expected of them. But it often happens, as I am credibly informed, that they must be dashed with cold water in order to bring their lungs into action. A dash of cold water would be apt to produce a spasm in a Saxon of whatever age.

Thus early begins the subjection to law and custom. When the child gets to be thirty inches high, or thereabouts, it is sent to school; whither it paces temperately, with little noise; racing, horse-laughing and all disorder are tacitly discouraged. The little girls link arms and gossip as they go; while the boys march soldier-like with their small knapsacks, precocious in discipline and conservatism. When the play hour comes, they engage in a mutually suspicious manner, as though self-conscious of hypocrisy and make-believe.

By and by they grow up,—more of them than would be supposed. But the habit of following authority and precedent in all concerns of life grows with them. They will never feel quite safe about blowing their noses, until they have seen the written law concerning that ceremony, signed and sealed by the king, and countersigned by Prince Bismarck. They swim everywhere in the cork-jacket of Law; and, should it fail them, flounder and sink: or even lose their heads and are betrayed into some folly which helps them to the bottom.

It is that early experience of swaddling and feather-pillowing, I suppose, which implants in all Saxons their sleepless dread of a draught. I fancy their very coffins must be made more air-tight than other people's, and that the sod must be pressed down more closely over their graves. Summer or winter, nothing will hire a Saxon to sit beneath an

open window, to stay in the same room with an open window, or to sleep with an open window in the house. Why windows in Saxony were made to open, is a mystery. The Saxon turns up his coat-collar and glares intolerant at the mere rattling of a window sash. He will risk a broken head in the cause of bad air. The atmosphere of the lecture-rooms in schools and universities, lies thick and foul as stagnant water. Those rooms are atmospheric sewers, with no outlet. If you become giddy and nauseated with this breathing-material, you must seek relief out of doors: no fresh air may trespass on the hallowed impurity of the interior.

As might be imagined, such lung-food as this gets the native complexion into no enviable state: in fact, until I had examined for myself the mixture of paste and blotches which here passes for faces, I had not conceived what were the capacities for evil of the human skin. I have heard it said—inconsiderately—that the best side of a Saxon was his outside; that the more deeply one penetrated into him, the more offensive he became. But I think the worst damnation that the owner of one of these complexions could be afflicted with, would be the correspondence of his interior with his exterior man.

The Saxon can no more be influenced to moderation in this matter, than the wind can be persuaded not to blow. His argument declares that a cold is more to be dreaded than poison, and influenza than a two-edged sword. Whereas, at worst, an influenza can but kill; but foul air means diseased life. It is surely better to die in the freedom of the mountains than to exist in however luxurious a polluted room. Nevertheless, the Saxon does not merely endure pollution,—he likes it—and it likes him.

It is an ill-built, ill-favored race, and of an unhealthy constitution. As for the soldiers, they are in all respects a forced product: compelled to exertion and hardship so long as their term of service lasts, they make up for it by dying early. They are machines, working marvellously while the driver's hand is over them; then coming to a rusty standstill for ever.

Despite their closeness within doors, in summer the Saxons much affect the

open air. They will sit all day beneath the beer-garden trees. Yet do they return, without sigh or shudder, to their atmospheric styes at night. And they seem to carry their atmosphere about with them. Meeting a party of them on the breeziest summit of the Saxon Switzerland, anon we have a subtle reminiscence of stale tobacco and beer. Is there nothing in the souls of this people congenial to the fair and pure influences of nature? They admire—who more vociferously?—a fine view or picturesque vista. Howbeit, the very fact of their being able glibly to utter profundities, casts a sinister suspicion upon the genuineness of their title-deeds to them. What true lover of nature, should she in a fortunate hour reveal her beauty to him, would not blush and stammer in the attempt to compliment her to her face? She abashes his praise to silence. That eloquent stanza which, as he sat at home, seemed to him the full utterance of the best his eyes could discover, shrinks now from his lips, and shows pale and vulgar. He must turn his back upon living nature, and forget the better part of her, before he can remember her eulogies aright.

Not so the Saxon, who not only delights to wear his heart upon her sleeve, but is himself the daw that pecks at it. He loudly approves that which transcends approval. The pure and chaste loveliness of nature, which should be viewed only reverently and in silence, he levels with the meretricious allurements of a harlot, which every charlatan may canvass with praise or blame. And, such is the bad power of this low spirit, the true lover's reverence is disturbed, and he is vexed with a miserable suspicion of that sanctity which he had fancied secure from all base approach. But in truth it is no mysticism to say that the essential Nature is in each man's soul; it is the soul, and the soul's mood, which quickens and colors her; and womanlike, she changes with our change.

The Saxon's sentimentalism is vitiated by his moral and physical ill-health. He is continually doing things false in harmony, and incomprehensible, as all discord is. Who but he can sit through a symphony of Beethoven's, applauding its majestic movements with the hand which has just carried to his lips a mug of

beer, and anon returns thither with a slice of sausage? It seems as if no length of practice could marry this gross, everlasting feeding, to any profound appreciation of music. He frowns down the laughter of a child, the whispering of a pair of lovers, as disturbing the performance: but the clatter of knife and fork, the champing of jaws—offends him not. He seems to recognise the noble beauty of the theme; he nods and rolls his eyes at the sublimer strains. Does he comprehend them? He reminds me of the Jews, who, indeed, possess the Bible; written, moreover, in their native Hebrew; who peruse it daily, and can repeat much of it by heart; and who yet have never read so much as a single line of the word of God.

x.

We have wandered through the village, its extreme outpost is behind us, and we tread once more upon the smooth white highway. The road is lined on both sides by interminable rows of trees, defining its course when itself is out of sight. There are cherry, apple, and, less often, poplar trees. On the whole, the effect is tiresome. I do not like to see my path marked out before me. Moreover, I am kept perpetually in mind of the nearness of mankind. Each tree was planted by a man; and, if it happen to be a fruit-tree, men must often visit it. The road itself, to be sure, is also man's handiwork. But it does not obtrude itself; at most it is but the amplification of a natural pathway, and so falls quietly in with the order of nature—provided only it be not too immutably straight.

It is a noticeable trait of this country—the impossibility of getting beyond every-day limits. There is no seclusion, whereof we may feign oursleves the first invaders, and, as such, secure from pursuit or encounter. There is no profound wildness, even where the surroundings seem least tame. The woods are supervised by foresters, in green uniforms and glazed caps, who take care that the trees shall be planted in straight lines, and affix its label to every tenth trunk. Who but a hypocrite would pretend to lose himself in a forest, all whose trees were numbered? Nay, in some places (the royal park for instance) are certain re-

spectable-looking old vegetables, which no one would suspect of such enormity, which are provided with names and titles into the bargain. We may find them set forth in the Forester's book thus: "No. 27. Oak. Heinrich the Stout." "No. 28. Elm. Karl the Long-legged." What is to happen to a people who can do such things as this?

We cannot fly beyond the possibility of a Saxon, so long as we remain in Saxony. No matter where we are, he has been there just before us; and hark! his step approaches from behind. But see yonder thickly-wooded dell, abode of nymphs and hamadryads, surely unprofaned as yet by any human presence: let us plunge into it, and woo its sweetly shy inhabitants. Quickly we pass its limits, and are engaged in pleasing conflict with reluctant branches. Virgin moss yields beneath our feet, we hear Arcadian twitterings of birds. The bare exterior world is shut out and forgotten. We listen for the light step of the wild nymph amidst the bushes, and scan closely the rough bark which seems ready to start asunder at the magic pressure of the hamadryad's finger.

Look! what flutters on the turf of yonder fairy glade? Is it the rosy girdle of some woodland being, who, frightened at our approach, has left it behind her in her too hasty flight? We draw near with reverent feet, and stand beside it. . . . Pick it up if you will: a small paper bag of a raw pink color, bearing on one side the legend, "Rudolph Kretzchmar, Cigarren-Handlung, Georg Platz, Dresden." Ay, he and his customers are here, all about us. We strike a path leading to the nymph's grot—'tis a smartly painted beer-cabin, with square, yellow, wooden chairs and tables. The nymph and the hamadryad, in soiled petticoats and rolled up sleeves, are scrubbing the floor and window; while Pan stands yonder in a swallow-tailed coat, with a napkin under his arm, and answers to the title of Kellner. Bring your best beer, waiter, and draw it cool. We need refreshment!

I know few spots more beautifully unkempt than is a certain rocky pass in the Saxon Switzerland. The steep sides are rank with mossy verdure—cool and moist with trickling springs. Tender

ferns bend greenly athwart dark backgrounds of stony clefts. Beside the rugged pathway bubbles over rocks the glancing soul of a cold brook. High up, the slope whispers with thick-growing pines, mingled with trees of less austere foliage. Highest of all, grey crags crowd abrupt and angular against the sky, and cast jagged shadows on the opposite steep. Listening closely, we hear only the brook, and the pines, and a dapper bird or two, and a torrid hum of invisible insects. "Here, at last," we murmur, "is the unprofaned retreat so long desired in vain!"

But, looking again at that immemorial battlement which the siege of centuries has so grandly scarred, we see painted, just at its base, a spruce white square, on which is recorded in accurately formed letters and numerals, white and red, the position of this point relatively to the Government Survey Base Line, and its elevation in metres above the mean level of the North Sea. Immediately the secluded pass seems peopled with the shapes of Saxon engineers, uniformed and equipped. Those pines were set out, at so much per dozen, by the King's landscape gardeners, who, likewise, grouped the rocks by aid of a steam derrick. The brook was a happy afterthought; but owing to the scarcity of water, it runs only during the season. There is a model in plaster of our entire surroundings in the Engineers' Bureau, with a pin sticking in the very spot where we now stand. I repeat there is no escape. The presence of man journeys with us like the horizon, go we never so fast or far.

Indeed, there are the stone-breakers, who take up their abode along our whole line of march. They are a class by themselves; I cannot imagine their following any other profession. They are mostly time-gnawed old fellows, whose bones seem to have been cracked long ago by their own hammers. They wear great goggles of wire-gauze, which give them an impressive air of gloomy cadaverousness. A huge wooden-soled shoe protects their foot from stray knocks. On frequented roads a canvas screen is set up, to protect the passer by from flying stone-sparks. We hear the dull intermittent beat and crack, but see only

the head of the hammer as it rises occasionally above the screen for a harder stroke.

The men seem to take an interest even in such work as this. An extra hard bit of **stone** arouses their combative instinct; and they have a sensation of pleasure when a fragment divides into pieces of the proper size and shape; while, if it weakly crumble, they damn it with contempt. Thus with their hammers do they sound the whole gamut of the emotions. Occasionally they pause from labor, straighten their stiff old backs, and glance at the sun, to see how far he is from dinner-time. Before falling to work again, they look critically at their next neighbor's stone pile, and exchange a grunt or two with him. Like other world-toilers, they sometimes think themselves hardly used—the sport of fortune, and grumble that they would have done better as watchmakers or painters on porcelain. In point of fact, however, stone-breaking is all they care about on earth, and were they compelled to forego it, they would break their old hearts in default. Even and regular stand their stone-heaps, end to end, and each is provided with its number, painted on a larger piece of flat rock. Labelling and classification is carried thus far, in Saxony; and I cannot kick a pebble from my path without more or less disorganising the schemes of the Government at Berlin.

XI.

I am continually oppressed with the idea that immeasurable possibilities for fine scenery are wasted in Saxony. The Saxon Switzerland is to be sure as picturesque as could be desired. But it is an abrupt topographical anomaly, uprearing itself in a reactionary manner out of a tedious extent of plain. From a great distance we see the vast square-built rocks lifting their shoulders a thousand or twelve hundred feet skyward; they seem to owe no relationship to the silly fields that smile at their feet—no sympathy either of form or substance. I find a shrewd correspondence between this topographical anomaly, and that mental one which uplifts, above the low level of ordinary German intelligence, the enduring group of cloud-capped gi-

ants which has given the land its reputation.

Why so flat and tedious, O Saxony? as though some enormous incubus had for ages been rolling its heavy length across your unfortunate face, till every feature was obliterated. Is there any remedy? I see none, short of a general eruption, whereby the whole surface might be broken up in volcanoes, and become a Switzerland indeed. And may the physical upheaval be prophetic of a moral one. It is of significance that mountainous tracts are ever inclined to freedom.

However, the country is not flat in the prairie fashion. It appears so only as the eye sweeps it from a distance. But, traversing the seeming plain, we find it everywhere seamed by narrow gullies, in which the villages lie; so that it were better described as an agglomeration of low table-lands. Beautifully verdant they are in spring and in summer, and pleasingly variegated with squares of many-tinted grain and produce. Moreover, there is an extraordinary abundance of wild flowers—rather an abundance than a variety. I have seen tracts of seven acres actually carpeted with pansies, whose myriad little faces show at a distance like a purple haze. Amidst the green young wheat grow deep azure corn-flowers and scarlet poppies: an armful might be gathered in a few minutes. The banks of country lanes are often blue with harebells; and anon we pass great clovermeadows, humming with bees. This commonness of beauty perhaps mars that finer enjoyment which needs rarity as the finishing flavor. Nevertheless it affords a broad, triumphant satisfaction.

A more concrete taste may be gratified by the cherries—a staple produce of Dresden neighborhoods. In spring, so thick are the blossoms, the trees resemble white branching coral; but the perfume is faint, as is likewise the flavor of the fruit itself. Flavor or not, they are agreeable eating in warm weather, and cheap enough to tempt to imprudence. We may sit on the bench beside the cherry-booth, and see our plentiful gathered from the tree over our heads: or, for a consideration, mount

the tree ourselves, and work our will upon it. The cherries are of all kinds and colors, from black to white, and are recommended by the vendor as good for the blood. We devour them, therefore, with the self-complacency of a health-seeker added to the palatal enjoyment; and were it not that they are dismally apt to be wormy, our pleasure would be without alloy.

Agreeably suggestive are the booths themselves—little broad huts, planted in the green midst of the cherry country. The season lasts from the end of June on into August—the mellowest slice of the year; and if enjoyment of nature be ever unconsciously possible, the cherry-people must be happy. Material cares they have none, for their business can lose them nothing, and is apt to pay them well. Each merchant hires a number of trees for the season, paying a percentage—not on what they bear, but on what he sells. The only danger for him is a total failure of the cherry yield, in which case he would be liable for ground rent; but this occurs only thrice a lifetime.

The booth contains a single room, in which sleep the merchant and his family, like caterpillars in a web. The cooking-stove is wisely put outside on the grass, and the interior thus kept free from smoke and heat. The wife sits in the doorway nursing the baby, while the other children, who are incredibly dirty, but all the happier therefor, play together in a desultory way, or tease a cross-grained cur, who is always an outspoken foe of intending customers. At noon, when the baby goes to sleep, mamma gets dinner: the family gather together: in the afternoon the man smokes his pipe: and so the day passes on.

Delightful—all this: the leisure; the trees, beneath whose shade we sit, all the time working for us and supporting us; the amusement of watching our guests—their various fashions of eating, their remarks and questions, their discontent or satisfaction, their manner of payment and of departure. With what independence would we prepare our noonday meal, and how appetising a fragrance would go up from our fried trout and our bacon and greens. Then light we the after-dinner pipe, whose blue smoke ascends skywards through

the green leaves of the tree beneath which we recline. At night, how comfortable to lie on our matting, amidst the country hush, hearing the summer winds come soft-footed up the valley and pause at our window; occasional cherries dropping over-ripe, with a gentle pat on the roof above; half-conscious, during the night, of the whispering passage of a shower; to fall asleep, secure in the watchfulness of the dog on the threshold; to dream of Arcadian shepherdesses; to wake, fresh, in the early morning, gather betimes our basket of fruit, and sit down to await our first customer. But I suppose the real life, especially when there are babies, does not run on quite so unexceptionably. A prolonged rain, or a wind perverse enough to blow the smoke in at the hut door, would impair our ideal humor.

XII.

We must turn our steps homeward: at yonder crossing is a guide-post, which should tell us our way, and the distance. Small risk of getting lost in Saxony, if guide-posts can prevent it. though their usefulness is sometimes impaired by the illegibility of the names inscribed upon them: the “nach” is the only part of the direction which is always distinct. Nor are the estimates of distances often of much service, especially when couched in terms of “Stunde.” Theoretically, two Stunde go to a German mile; but, in practice, they vary as the length of various men’s legs. What is an hour’s walk for one, another may accomplish in half the time; and a dim recognition of some such fact has led the people to qualify their Stunde by an array of adjectives which complicate if they do not relieve the difficulty. The government milestones, however, are distinct from the guide-posts,—are a newer institution, and as rigidly accurate as their elder brethren are lax. Solid and orderly are they arched over the top, and consecrated with the government monogram. They look like gravestones beneath which we may fancy the particular mile recorded on them to be interred. German miles are so long, that we never get on such familiar terms with these milestones as we do with English ones; and the decimal fractions are a sore trial of friendly forbearance.

As we descend the slope towards

Dresden, the long panorama is rich with peaceful beauty. There rise the spires and domes, mellowed by the western sun; the white-gleaming river; the further shore dotted with white villas; the pine-shaded horizon, and, wide and high above all, the grand phantasmagory of cloudland. It is in this point of cloud-scenery that Dresden surpasses all places I have seen. The time will some day come, after we have learnt to travel by telegraph, and have become familiar to satiety with terrestrial beauty, that there will be pilgrimages, not to the Alps and to Niagara, but to the land of superbest clouds. Clouds never can become hackneyed, for their forms and tints are infinite, and no Murray or Baedeker can lay down rules and usages about the seeing them. In any true sense of the word, they are indescribable—save by lady-novelists, new to their profession, whose ideas are apt to be cloudy. In every way they are the most elevating part of nature—entrapping our eyes at the horizon, and leading them zenith-ward. Without clouds, the bare, blue unchanging sky would become intolerable. Man cannot bear unmitigated heaven, any more than he can do without clothes. Clouds are the garments of the sky, and each new costume seems fittest of all. Throughout the world it is the garment that is beautiful. Trees have their leaves, rocks their moss, soil its grass, the earth its blue atmosphere, the atmosphere its clouds.

These vapory mountains quit^d outdo

their solider rivals; but inspire the imagination with promise of celestial prototypes yet fairer than they. With their unlimited range of form and shade they may arouse all sentiments from grotesque to sublime. And they prepare the untravelled mind for all the best that earth can show. No alps, no castles by the sea, no palaces in Spain, can surprise him who from his own house door has seen the sun set. And not the traveller only, but the wit, the humorist, the student of character, may find stimulant for thought and food for reflection in the clouds—find his noblest fancies outdone, his completest theories proved inadequate.—But how is this? Yonder celestial cloud-pinnacle, up whose steep acclivity our high-flown thought was clambering, has subtly sculptured from its facile substance a set of demoniac features, which twist themselves into a sardonic grimace of mockery at our enthusiasm.

Our parting digression has carried us too far: we must get back once more to the sober highway. But we return, also, to the opinion which has accompanied us throughout our day's ramble—that the solidest attractions of Dresden and its suburbs are the impalpablest ones, and the least describable. If so it be, the Saxons need not repine. Only the baser part of things is communicable; and doubtless the pleasanter features of the Garden of Eden are those, whereof no tradition has come down to us.—*Contemporary Review.*

THE ANCIENT CLASSICS.*

THE pre-eminence which all the modern world has concurred in giving to the classic literature of ancient Greece and Rome, is one of the most curious facts in the mental history of humanity. It is the only foundation of letters upon which every European nation is agreed. All the charms of novelty, all the jealousies of race, all natural human pride in the development of Science and the

progress of Art, have yielded to the silent power of works produced in ages completely apart from our own—removed from us by difference of tongues, difference of sentiments, habits, beliefs—everything that is most characteristic in mankind. The world is so accustomed to this wonder that it is probably only those who sit in the seat of the unlearned who are ever really struck by it, or perceive the curious testimony thus rendered to human nature and human genius as above the action of time, unsusceptible of that development which is the condition of all secondary things.

* Ancient Classics for English Readers. Edited by Rev. W. Lucas Collins, M.A. William Blackwood & Sons, Edinburgh and London. 1874.

The rules of Art have changed, and habits of life and modes of thought. Morality even has undergone a profound and all-pervading revolution. Sentiments which were sufficiently noble and worthy in the days of Homer are ignoble and unworthy now; things which his heroes do proudly, the meanest of Englishmen would be ashamed to do, so entire is the change. Language even, in the wider signification of the word, has altered, and the allusions and metaphors and impersonations which gave eloquence to Greek verse, sound turgid and meaningless in modern tongues. Yet all these details are of no effect to lessen the power of that primeval literature which, outlasting all primeval forests, all systems, religions, and governments, reigns still as potent as in the days of Pericles, bearing an almost tyrannical sway over our education and our intelligence. Not to descend to those prejudices of scholarship, which can scarcely bear to allow that the genius of Shakespeare could exist uninspired by classic models, the universal sentiment of Europe considers all men imperfectly educated who have not been "grounded," as Dominie Sampson grounded his pupils, in the Greek and Latin tongues. The "Humanities" is the expressive old-fashioned term for those languages in which Genius first made itself felt as a power in the world; and nothing that has occurred in all the centuries since—no discoveries, though so many have been made—no developments, though their number is infinite—no new thing, though everything is new,—have shaken the power, or indeed much diminished the influence, of the two parent tongues, and the wonderful inheritance of letters which they have left to us. Whether this is altogether wise, or altogether beneficial, is a question which might perhaps be discussed if any competent judge were sufficiently free from the prejudices of education to be able to discuss it; but we suspect it is only those who have too imperfect a knowledge of the question to secure our confidence in their treatment of it who would have boldness enough to take it up. There are, indeed, no small number of persons who advocate a change in the one stereotyped mode of education which is universal among us, and would

prefer for the non-academical mind, or for those who have but little time to spend in the processes of instruction, a thorough training in modern languages and modern lore to fit them for practical uses; but not one has been so bold as to suggest that the highest education of all was possible with this foundation left out or imperfectly laid. Thus, by universal consent, the old poetry and old philosophy of the Greeks—and after them, to a lesser but still great degree, the philosophy, history, and poetry of the harsher Romans—is firmly established everywhere, wherever civilisation or letters reign, as the groundwork of everyting that deserves to be called education. A most curious fact among all the prodigies of things; but one which is absolutely above discussion, and must be accepted, private opinion being on this point overborne and silenced by the common voice of all nations and of all time.

This being the case, it is perhaps rather hard that one half of the race should be absolutely cut off by habit and prejudice from all share in this universal groundwork of education, and a great proportion of the other half kept from it by iron force of circumstances, by poverty, and all the necessities of toil. Many attempts have been made, by means of translation, to obviate this hardship, and doubtless with some beneficial results. A century ago, indeed, we suppose Pope's 'Homer,' for example—which is perhaps more markedly Pope than Homer—was sufficiently popular to be read like any other English poem, and to make Achilles and Ulysses, Hector and Andromache, known with some degree of familiarity to the busy men and the women of his age. Lord Derby's fine and spirited translation of the 'Iliad,' so much more true to the spirit of the original, and Mr. Worsley's graceful and poetic rendering of the 'Odyssey,' have in their turn made Homer, so to speak, popular, and reintroduced him to the present century. But we cannot think that translations generally ever give effective rendering of the meaning of a poet. Writers in prose have better fortune, and are more happy in their fate; yet every reader knows how much meaning, and still more how much grace, evaporates, even in the case

of a prose writer, in his transfer from one tongue to another—and that even when the journey is so short as from France to England or from England to France. How much more this must be the case when the voyager comes across oceans and across centuries from the wealthy and subtle tongue of the Greek, so rich in minutest shades of expression, into the downright, straightforward syllables of Saxon English, any reader will easily perceive. And who at any time, out of any language, will render to us the delicate music of verse, the magic of poetical expression, and that divine art, which by the simple turn of a phrase, by some cunning balance of tuneful words, can charm the very hearts out of our bosoms? It is a great chance, even when the poet translates a poet, as rarely happens, that any real echo of the original music reaches our ears. Even such a work as Coleridge's 'Wallenstein,' though the translator is of equal poetical rank with the author, lacks, as we feel, a hundred touches which thrill the ear and the spirit in the original strain; and to descend to more ordinary levels, though Carey's Dante is most faithful and trustworthy, virtuous would that reader be who could read through the 'Divine Comedy' in the pages of Carey. The English reader ignorant of German, who, wishing to make acquaintance with Germany's greatest poet, takes up any of the ordinary translations of Goethe, mustgulp down with wondering faith or incredulity, according to his temperament, many verses called brilliant and beautiful by all critics, which in the English version are dull as ditch-water, and scarcely more clear. The chief pleasure derived from translations, we believe, falls to the lot of those who, knowing the author well in the original, are able to judge how well or how ill he is rendered, to linger over and improve the imperfect lines, to vituperate those which are beyond the reach of improvement, and finally to decide, as we do, that translation of a poet is a thing next to impossible.

The reader will ask, How, then, are we to form any idea of poems written in a language we do not understand, and notably in those languages of which it has just been said that they are the foundation of liberal education? To

this question Mr. Collins and his coadjutors, in the edition of the 'Ancient Classics,' now just completed, and crowned by the flower-wreath of Lord Neaves's 'Anthology,' enable us, we are glad to say, to give an answer. The idea which has thus been carried out to completion is, so far as we are aware, original; and the works form a very noble and worthy offering to their country on the part of the gentlemen—too long a list to be here quoted—who have aided in carrying it out. The plan of this series is to make the forgetful or un instructed reader acquainted with the character, situation, and sentiments of each classic author—with the scope of his argument when the subject is philosophical—with the nature of the story when it is dramatical,—interspersing here and there a quotation, but not more of this than seems necessary to afford a glimpse of the writer in his own voice and method. We cannot give higher praise than to say that this admirable plan has been carried out with, on the whole, a high degree of success, and that the little library of the 'Ancient Classics' is admirably qualified to restore to the intelligent ignorant—that large, and in many respects most attractive, portion of the community—their share in the inheritance which nature, circumstance, or custom has hitherto shut them out from, and so to make them partial compensation for the loss which is their misfortune. We trust no sensitive reader will be offended by the designation which we have ventured to employ. Intelligence, as distinguished from knowledge, gets but little recognition nowadays; yet we make bold to say that there is no audience in the world so desirable and so delightful as intelligent and curious listeners, who know nothing, or next to nothing, of the subject about to be unfolded to them. Their ignorance is an accident of all others the most favorable to their instructor, and secures that freshness of interest and reality of intercommunication which is the very highest delight of teaching, whatever may be its kind. To this portion of the public we commend these charming little volumes with unbounded confidence in its appreciation of them. To those who have not yet availed themselves of their instruction,

an account of these valuable little books may not be undesirable; and it is to this, rather than any detailed criticism of a series which extends over the widest literary collections in the world, that we mean to address ourselves now.

Criticism, indeed, seems somewhat out of place as applied to Homer, to *Æschylus*, or to *Plato*; those great figures, deified or canonised, or both, by so many ages, are placed too high even for the audacious flights of the modern critic; and even did our boldness go so far, we do not know how to come at the right standing-ground from which to direct our telescope at them, with any hope of getting them in the right light for such a purpose. To tell the truth, the literary atmosphere is too deeply tinged with the shadows of those ancient potentates, to make it easy for us to form any unbiased opinion of their excellences or of their defects. Even those of us who are not familiar with them at all—who have never, so to speak, seen them before—have yet seen, all our lives long, so many reflections of them, and heard so many echoes of their great voices, that we are in but an indifferent position for regulating their various magnitudes, or for letting loose an indifferent opinion as to their perfections or imperfections. That there is a great deal of superstition in the reverence with which ancient literature is surrounded, we do not for a moment doubt; nor are we in the least prepared in our own person to go to the stake for the superiority of Greek, as are so many learned and studious persons, to whom all that is best in the human intellect is summed up in the age of Pericles: but yet we are, like our neighbors, bound by too many links of reverential associations, and overawed by too many authorities, to be able to look calmly upon the heroic shades as they pass before us, or point them out as Helen pointed out the Argive chieftains to old Priam in the gate. They are surrounded by a halo of solemn importance—by a superstition, a prejudice, which is all-powerful. But after all, dear reader, this last simile is not so inappropriate as it seemed at the first glance. Your present humble guide to these flowery fields is not Helen, any more than you are Priam and his elders. Probably, indeed, the state

of the case is reversed, and it may be to a listener as fair as and more innocent than the fabled princess, the cause of all the woes of Troy, that a venerable cicerone, with locks as white as those of the Trojan king, herein discourses, pointing out, from the battlements where Maga's flag has fluttered proudly through many a siege, the great array of shadowy splendors upon the plain below. If so, sweet reader, give us your pretty hand. This lore is doubly appropriate to your case. Come near, and we will point out to you, with all the complacency which moved those old men of yore towards that other fatal beauty, the long array of this princely procession, the gigantic noble figures, the far-off but lofty victors of the past.

The series begins as Art begins, and as all literature begins, with the great *epos*, the story which is the first aliment of the awakened mind. Before we begin to think, or to know that we have thought, does not every new child-microcosm of the big world begin by demanding the Story, which is the first tribute it exacts from its race, the first necessity of its being? The 'Iliad' is the great antitype of that universal symbol of human curiosity. It is to the human race what the traditional story of the nursery is to every new human soul. Whether it has any occult and mythical meaning not visible on the surface; whether it is the traditional history of a real but far-distant event, or merely the invention of the first great poet—or whether, indeed, it belongs to one poet at all, and is not rather a bundle of anonymous ballads,—are questions to which we do not pretend to be capable of giving any answer, and which Mr. Collins happily avoids embarrassing us with. What he does do is to give us a vivid and animated account of Homer's stirring tale, setting before us the conflict and the conflicting parties in a brilliant yet concise narrative, in which is embodied the story of Troy, and the many and varied persons involved, the scene and the events of the 'Iliad'—everything, indeed, in Homer except his words, which many men have already essayed to give us, with differing degrees of success. All these can be set before us without any of the difficulties that attend direct translation or the danger of bringing

down the sublime into the mediocre, which constantly happens even in the best versions of classic story. By this means, too, the least satisfactory parts of the poems, the tediousness and oft repetitions of its combats, and the irritating, troublesome, and ignoble meddling of its divinities, is left in the background, and does not worry the reader's mind, like the proceedings of a village coterie of unpleasant gossips and meddlers. Mr. Collins does all he can to save his audience from the impatience which takes possession of us when we read of Minerva's sudden appearance at the crisis of a fight to carry off the almost discomfited hero, and spoil sport, just as the other fine fellow is getting the best of it; or of Apollo's ungentlemanly interference (it is more pardonable in a goddess) at a similar crisis, spreading a mist, for which we are sure stout Hector thanked him little, over the hero in his chariot. Mr. Collins calls the attention of his readers to the valuable side-light thrown by Homer's most ancient story upon the early records of patriarchal life which we find in the Scriptures. No doubt the Biblical student may derive from this sidelight a certain advantage, but the thought which occurs to ourselves, in the comparison, is of a different character. How much more striking, how wonderful when we think of it, is the aspect of Deity as apparent to the great bard, and that which was revealed to the Hebrew prophet! How troublesome, paltry, and wearisome are the gods of Olympus, like nothing so much as the village clique we have already compared them to—a coterie of wrangling and meddlesome gossips, endowed with power as great as their caprices, but never great enough to lend dignity to the ill-regulated crowd! To turn from this motley and almost comic group to the solemn and simple grandeur of the Lord God of Genesis, is as startling and impressive a contrast as can well be conceived. Whence comes this extraordinary difference, this incalculable moral superiority? The historian of Abraham and the historian of Achilles are both great poets—they are both too far off in the mists of antiquity to offer us any indication of their personal character, or the sources of their information. How was it that to one on the great Eastern plains there came a

conception of God so infinitely grand and solemn, and to the other among the lovely islands and shining seas of Greece a conception of gods so infinitely paltry and miserable? We do not know what answer can be made to such a question by those who recognise nothing more than a mythological historian in the Hebrew. A more wonderful contrast was never presented to human judgment.

And the effect of this curious paltriness and absence of dignity in the Homeric gods is made all the more distinct and evident by the fine humanity of the heroes themselves. What a wonderful witness is this Father of Song to the prodigious separation which exists between human nature and all the secondary things which are supposed to mould and shape it—the circumstances which, according to some theorists, make all the difference between one man and another—the process of development which, according to others, accounts for everything that is distinctive and characteristic in the race! It is two thousand years at least since Achilles sulked among his ships—watching with moody gaze the discomfiture, without his aid, of those comrades who had insulted his pride and self-regard—and since noble Hector took his child in his arms, laying aside his glittering helmet to reassure the frightened babe. All the circumstances, and many of the sentiments of humanity, have changed since then. What nation now would risk its very existence for such a wanton pair as Paris and Helen? What wronged husband would equip an army to reclaim a dishonored wife? What general drag at his chariot wheels the body of his noble antagonist? Yet while the motives and actions of these distant figures are often astounding to us, the men and the women are as real as those we see with our eyes and touch with our hands. Everything else has changed, but they are still flesh of our flesh and blood of our blood. Achilles has his counterpart in every nursery, not to say in many a greater field of public life; and how otherwise could the soldier of the nineteenth century part from the wistful wife and unconscious child whom he leaves, uncertain of ever seeing them again, but with the same ringing of the heart, and almost the same words as Hector's?

The surrounding scene is almost as real as the human creatures in it; the town with all its defences, enclosing so many anxious hearts—the women stilling the gnawing of their fears and the terrible disquietude of suspense in the monotony of their domestic occupations, or in the prayers they pour out in the temples, nobler in their trouble than the things they worship—the old men at the gate, anxiously surveying the crowded battalions of their enemies—the warriors arming themselves for the sally,—how true they are to every human instinct! And on the opposite side the careful plans, all liable to be deranged by an outburst of personal feeling, by a sudden quarrel or supposed slight, as councils of war have been in all ages—the anxious kings feeling upon their shoulders the responsibility of a nation's welfare, and prescient of all the reproach and lamentation that will assail them if they fail. How perfectly real is this picture of an allied army, each warlike group holding by its own leaders—each haughty chief standing upon his dignity—and an all-anxious "king of men" doing his best to hold the balance even, and keep all in concert. The difference in our habits and feelings only seems to quicken our sense of the intense reality of these great inhabitants of the past, who do many things which it would be impossible for us to do, without ever losing their human likeness to every one of us. We can all sympathise sufficiently with Achilles in that false dignity of his wounded pride, as to feel a little sore when a plain-spoken critic calls it sulks—a brutal word; but not one of us can have the slightest fellow-feeling with him when he yokes Hector's body to his car, and drags it after him in revolting triumph. This extraordinary difference in point of feeling proves the wide divergence of the ages and the real work of development in man; but no more affects the fundamental humanity than does the invention of railways or telegraphs, and leaves Achilles still a true and recognisable representative of our race. Indeed, Homer in his primitive art is truer to nature, even as we know it, than some of our own greatest poets; for the principles of his craft evidently do not require of him any high-toned ideal. Hector is the only one of his many heroes who ap-

proaches the finer type of manhood which Art has since set highest; the others come bodily on the scene, faults and all, as genuine men and as imperfect as if they still saw the light of common day. We know nothing that could be said in higher praise of the poet's divine art. Mr. Darwin, we believe, asks for an immense area in which to work his slow and gradual transformations—and perhaps that great philosopher might tell us that two thousand years is a moment not worth reckoning in the long chronicles of the universe; but it is at least satisfactory to find that so long ago men were so very like what men are now. Happily, we have learned something in the interval, but not so very much as we take credit for. We give our dead enemies honorable burial nowadays. It would be hard to say in what other particular of humanity we have made anything like the advance which we ought; and in sentiment we doubt very much whether the last development of military power and character is in any appreciable degree more merciful than Peleus' sullen but heroic son.

This curious and most impressive lesson gives to the great primitive song of Homer a weight and importance which justify, more even than its intrinsic beauty and splendor, the place it has always held in the estimation of the world. It thus becomes more than a great poem; it is the very *epos* of humanity, worthy, so far, of a place by the side of ancient Scripture—an old, old, immemorial charter of common nature and universal brotherhood.

Next to the primeval story, the first world-tale of which we are cognisant, comes the great cycle of the Greek drama—parent of the drama in all ages, yet with so many special features of its own. We cannot pretend to agree with the writers who, in this series and elsewhere, are so far moved by scholarly prejudice as to hold up for our applause the arrangements of the ancient classic stage, the songs and dances of its chorus, the impressive appearance and elocution of its masked actors. They were no doubt impressive in the highest degree to their natural audience, but we fear that the masked and buskined performers, elevated to more than mortal height, would

produce no effect whatever upon the modern imagination, and that the ugliest of mimes would move us more than the most beautiful Grecian masks ever moulded to shadow forth the heroic countenances of an Agamemnon or an Orestes. Neither can we think the chorus the happiest of inventions (if we dare say as much without being ordered for instant execution). These details may, we hope, be allowed to have been less than perfect without in any way detracting from the magnificent but sombre creations of genius which occupied the early stage, and held the old Athenians breathless with the charm of tragedy more profound and terrible than has ever been ventured upon since that day. Curiously enough, those Greeks whose long past existence is held up to us as the fullest embodiment ever attained to in this world of natural harmony and brightness—whose love and knowledge of art was most pervading, whose delight in beauty was strongest, and whose entire life was most impregnated with enjoyment—are the possessors of the most gloomy and appalling tragedies that man has ever ventured to shape and give utterance to. There is but little variety in these primitive dramas. The action of fate, blind but unfailing, and always terrible; the dread sweep of unseen influence which leads to crime, and the more apparent and equally appalling whirlwind of ruin which comes after,—are set forth with magnificent but awful effectiveness in the two great stories which are the most characteristic of these wonderful productions. The trilogy in which the fate of Agamemnon and his family is worked out, and that which pursues to its last survivor the fated house of Oedipus, are works of a sombre grandeur, unknown to any other language; and bright as the scene may have been, all Athens assembled in the great theatre, and the Southern sun gleaming in, and the pure blue sky shining overhead, there is no brightness, no play of dramatic light and shade, such as modern audiences love in the tremendous tale. Everything in it is gloom: even the preface of wellbeing which comes before catastrophe, is so overclouded with the consciousness of misfortune to come, that no real brightness is possible; and the hecatomb with

which now and then a great English tragedy ends, as in Hamlet, is nothing to the succession of murders and counter-murders in those sombre dramas of the Greeks.

In the group of works dedicated to the race of Agamemnon, for example, we have climax after climax of woe—a woe so mixed with natural outrage, that its effect is increased tenfold. Its immediate beginning (for indeed the first guilt which drew on all the others begins far enough back, with Pelops himself, the founder of the house) is in an involuntary and indeed unwilling crime, the sacrifice of Iphigenia, which her father is forced to consent to against all the resistance of nature, but which furnishes to his unfaithful wife, Clytemnestra, an excuse to her own mind for the vengeance which she takes upon her husband, though that crime is suggested more by her guilty connection with Agisthus than out of righteous wrath against the slayer of her child. Mr. Leighton's picture, in this year's Exhibition, of this tragic woman, watching on the battlements for the approach of the husband to whom she has been faithless, and for whom she is preparing so terrible a home-coming, will occur to many readers. How eagerly the guilty queen snatches at the recollection of this old crime, done twenty years before, hiding under it, even from herself, the sullen shame and fear of her personal sensations! In this first chapter of the tale of fate, there is an element of unreality involved which brings out the darkness and fateful character of the plot with double force. Agamemnon is not really guilty of his daughter's death, but was forced to it, himself perhaps the greatest sufferer of any involved; and Clytemnestra is not really thinking of vengeance for her child, but of the far more immediate necessity of sacrificing her long absent husband to her present paramour. The king is the victim, not of his own crime, but of his wife's—not of Iphigenia's murder, but of Clytemnestra's perfidy; yet is there enough in that murder of the daughter to give a sort of specious excuse for the vengeance of the mother. None of the early poets make much account of time, and these twenty years do not seem to have made the Queen of Ar-

gos old, or damped her fire or softened her recollection. She receives her husband with feigned delight, but kills him remorselessly, and exults in the deed—making no attempt to throw the blame upon any one else. Thus he who had spent so many years in vain struggle to recover his brother's wife, is struck down by his own, who has incurred a similar guilt; in tremendous vengeance of the gods, for so much bloodshed, or in miserable human self-defence—who can tell which? for both are involved.

The next event, narrated in the second play of the trilogy, the *Choephoroi*, is the murder of Clytemnestra herself by her son Orestes, under the double suggestion of the god whose oracle he had consulted, and of Electra his sister. The concluding drama tells of the wild pursuit over land and sea of Orestes, with his mother's blood upon his head, by the Furies or Eumenides, "the kind ones," so called, as fairies in Ireland are called "the good people," to conciliate apparently those messengers of doom. His vengeance is accomplished, but at the cost of such a punishment as has served ever since as a symbol of the hunting of Remorse, the desperate flight of the criminal from imaginary pursuers. Thus the climax of the grim tragedy is attained. The father has slain his daughter, the wife her husband, the son his mother. There is no mortal avenger left of his race to pursue Orestes, even had his crime not been, as it was, a legal execution commanded by the gods, and justified by the opinion of the people and the entreaties of his sister; but yet, though thus sanctioned, the dark deed he has done cannot be left without punishment. Before the blood of his mother has been wiped from his sword, the Furies, "with noiseless tread, with hands and feet that never tire," are on his track. Day and night they hunt him over land and sea; and when he pauses, all haggard and breathless, in Apollo's temple, to claim protection of the god, the moment's respite which the fugitive thus gains is in consequence of the brief slumber of his fierce and hideous pursuers, who lie huddled in a corner of the stage while he pleads his despairing cause. Apollo sends the unfortunate on to Athens to appeal to Minerva, while his pursuers still sleep; and there they follow him on

their awaking, but only to have their victim delivered from them by the sudden creation, to meet the emergency, of the great tribunal of the Areopagus at Athens—a splendid expedient of the poet's patriotism, by which he at once delivers his hero, and holds up the institutions of his city to universal renown. The first cause pled before the new court is thus a sublime one—the first pleader at the bar being no less a personage than Apollo himself, while Pallas Athene sits as president and has the casting-vote. And so the last survivor of so many murders, the final avenger, is delivered, and the race of Agamemnon spared to flourish anew.

This wonderful tale attracted both the other great dramatic poets of Greece, though Aeschylus is its first and sublimest narrator. Euripides, more prone to the softer humanity of the subject, takes up and lightens the early tragedy of Iphigenia, representing her as sacrificed only in the milder sense as a priestess to Diana, and affording her an opportunity of succoring her brother. Sophocles, "sad Electra's poet," takes the sterner sister for his heroine, and gives us over again the story of Orestes' vengeance, with details impossible in the older and severer trilogy. We are tempted to quote one brief ode of the Chorus in this play, in order to indicate the Greek sentiment in respect to fate and punishment—its certainty that vengeance must come, and fierce satisfaction in it. Electra, with her attendant train of Argive maidens, has just listened breathless to an account of a dream which has troubled Clytemnestra in her guilty slumbers, and which they receive as certainly prophetic of a coming avenger—the avenger whom they have been expecting fiercely but silently from day to day. Here is the outburst of their exultation over this sign of the approaching punishment:—

"Unless prophetic instincts err,
Unless my wonted wisdom's fled,
He comes, my great deliverer,
With justice to the mighty dead.
He comes! he comes! inspired with courage
 high;
I hear the dream's propitious augury.
Your sire remembers in the nether gloom,
Our king, the axe, the instrument of doom,
Cannot forget the crime from which this fate
 Holds us unfortunate.

The Furies come with noiseless tread,
With hands and feet that cannot tire,
To strike the impious marriage-bed
With sudden and avenging ire.
They gather: this, at least, these wonders
seem
To show us, else no more will mortals'
dream,
Or prophets' warning tell a certain tale,
Unless for us this night's blest dream pre-
vail!
Nought can be counted true unless in this
is shadowed our true bliss.

"Oh chariot race, by Pelops won,
What fate, what woes from thee begun,
Afflict this wretched land!
When Mytilus beneath the wave
Fell headlong to watery grave,
By Pelops' treacherous hand.
Ne'er since have we, ill-fated house, been free
From this our heritage of misery."

The story of Oedipus is still more tremendous. Oedipus is the son of king Laius of Thebes, to whom it has been prophesied that his son will kill him. To avert this doom the child is exposed in the wilderness, where it is picked up by a shepherd, and grows up to fulfil the prophecy. The story of the Sphinx and its riddle, which Oedipus solves, is more commonly known than the other parts of the tragedy. Before ever he appears at Thebes, however, he has killed his father in a chance encounter, and the reward promised to the solver of the riddle is the crown of Thebes and the hand of the queen Jocasta, upon whom evidently (such is the habit of Greek drama) the thirty years which have passed since the birth of Oedipus have made no material difference. The unfortunate stranger, slayer of his father, thus becomes the husband of his mother, and all the vials of wrath are charged that must descend upon his unhappy head. But Fate comes slowly. Unconscious of his involuntary crimes, Oedipus lives happily for years, and his children grow up equally unconscious of their miserable origin. It is only when they are grown men and women that the doom falls. Then sudden trouble all at once overshadows Thebes. Pestilence and famine unite to crush the doomed city. In their dismay the citizens appeal to the king who once saved them from the Sphinx, and who in his turn appeals to the Delphic oracle. The answer of Apollo seems at first simple and satisfactory enough. It is because the murder of Laius is unavenged

that the city is plagued; let them but discover and punish the criminal, and all will be well. This office Oedipus cheerfully and eagerly takes upon himself. He will pursue this man, he declares, as if it had been his own father who had been murdered; and wherever he finds him, if even in his own house, will do instant judgment upon him. This most pathetic unconscious self-denunciation is the great example of what scholars call "the irony of Sophocles." We doubt much, however, whether any uninstructed reader will have leisure enough in the breathless horror of the situation to think of irony. The unhappy king gradually finds out not only that he himself is the man, but all the horrible and unnatural circumstances that aggravate his crime, and make him accursed. Then in a moment all his fictitious wellbeing ends like a dream. Jocasta, his unhappy mother and wife, destroys herself; and Oedipus, with a great cry of mortal agony, blinds himself in his despair, and so goes forth—another but more desolate Lear—blind, disrowned, and accursed, into the desert world.

The second play carries out the irresistible sequence of fate. A little breathing time has been given to the unhappy man. His daughters cling to him, or at least Antigone, a nobler Cordelia, one of the first and purest emblems of that feminine self-devotion which has since found so many examples. Antigone is the staff of his old age, leading the blind old man about from place to place, as he wanders in enforced exile, and giving a certain sweetness to his evil fate. But his doom is not yet accomplished. His sons begin a fierce conflict for the throne of Thebes, and make a cruel attempt to draw him to one side or the other—the mere possession of his body, alive or dead, being, as once more the oracle says, the condition of victory for the side which secures it. Oedipus, however, escapes this disrespectful and irreverent conflict by a mysterious death. He is the only victim of Greek tragedy who attains something like the dignity of a martyr. He dies, as it seems, voluntarily—going away into the darkness at the command of the gods, not sent to Hades by any murderous blow. Whether there is any subtle intention in this, or vindication of one who has sinned involuntarily,

we will not pretend to say; but the death of the classic Lear is at least infinitely more dignified and awe-inspiring than that of any other slain victim of the Fates. There is the sound of a great voice, "Come, *Oedipus*;" and when the spectators reach the spot, they find only his companion Theseus standing alone shading his dazzled eyes; the great sufferer has disappeared like Moses, leaving neither grave nor relic, into ineffable gloom.

Meanwhile Eteocles and Polynices, the sons, have been struggling for the throne, of which, off and on, so to speak, Creon, the brother of the unhappy Jocasta, seems the real occupant. Eteocles, the younger, has possession of the city; and Polynices puts himself in the wrong by assailing it, bringing six alien chiefs with him, so as to attack each of the seven gates of Thebes. The brothers accomplished the fate of their unhappy family by killing each other; but not even then are the Fates satisfied. The noble Antigone (whom Mr. Clifton Collins makes the strange mistake of comparing to Dickens's sentimental "Little Nell") has yet to wind up the sad story with a generous self-sacrifice worthy of her. The body of the rash and rebellious Polynices is sentenced to that last worst doom of Greek vengeance—to be left unburied; a direr fate than the mere impiety and disrespect of thus exposing human remains, for it was supposed to involve a comfortless wandering in Hades to the victim, and all the unhappiness of a restless ghost. This Antigone, freed by her father's death from one task of love, devotes herself to avert; and as she has been caught in the act of covering her brother's body, is seized, and by the sentence of Creon condemned to a living tomb, to be built up in a cavern among the rocks, as the fit punishment of her rebellion against the law. The story of Antigone is often quoted as the only love-story of which the Greek drama takes note; but the love in it is more implied than evident. The heart of the maiden is too full of the lofty duty which inspires her to leave room for any effusion of sentiment. She bewails, indeed, like the daughter of Jephthah, the promises of life unfulfilled, and pathetically hails the "vaulted home," so securely guarded, in which

she is about to be immured, as her bridal chamber; but not a word comes from her lips, as she makes her way towards this last habitation, of the betrothed lover, who is at that moment pleading her cause with his hard father. Her thoughts are intent on other things—on mysteries of life and death, on the shades whom she is about to rejoin, and on the sunshine and hope she is about to leave—but never on Hæmon, who is her destined husband. Nor does he plead for love's sake, but only for reason and justice, bidding his father beware of the revival of human sentiment among his subjects, all of whom bewail the maiden thus condemned to a foul death for a noble deed. It is not, however, to Hæmon's pleadings, but to those of the blind prophet Teiresias, vague but terrible messenger of fate, whom all men fear, that Creon eventually yields; and then he yields too late. When Antigone's death-chamber is broken open, she is found dead with her lover by her side, who madly stabs himself at sight of the despairing and relenting tyrant, whose repentance is thus rendered unavailing. And so the tragic story concludes; in the extinction of the whole unhappy family, with the exception of a timid Ismene, common soul, to whom no despairs or tragic missions are possible, and who relapses into the crowd, as even in the Greek drama some must do.

Thus ends the terrible tale—a tragedy full of great situations, strong sensations, and at least two noble characters, but full of gloom so unbroken, that the reader trembles and shrinks as he reads. It would need all the traditional brightness of Greek life, the dazzling sky, the visible presence of august Athens, and the inspiring atmosphere of Greek poetry, to enable any mass of spectators to endure the tremendous strain, which indeed has scarcely any relief from beginning to end. The horror of the first catastrophe is indeed somewhat lightened by the noble martyr-end of *Oedipus*, and by the lofty sacrifice of Antigone; but the relief is only from terror and woe to that profound and high-souled pity which makes enthusiasm sacred. We are permitted no gleam of pleasure, no smile, no sun-glint. The fantastic Gothic art which leaps from grave to gay, from tears to laughter, with a capricious self-

compensation of its own, has no counterpart in the solemn Greek imagination: even the poet's cunning pause in his tale of storm and calamity, his change into the whispering tuneful measure, "like a hidden brook in the leafy month of June," which gives to our impatient northern souls a moment's breathing time and much-loved change, is rarely employed by the ancient dramatist. Those sunshine-loving Greeks, with all their brightness, do not seem to have felt this necessity, which gives so much variety and delightful vicissitude of light and shade to more modern art.

And as Sophocles supplements the story of Agamemnon and Clytemnestra by a drama especially devoted to "sad Electra," so Æschylus preludes and prefaches his brother poet's great trilogy by the drama of the 'Seven against Thebes,' in which the fate of the brothers is set forth, and that of Antigone foreshadowed. The genius of this brotherhood of song, however various, finds the same fascination in these grand and gloomy legends. They afford, evidently, a perfectly congenial expression of their primary perception of the great questions between the gods and men. Punishment to the wrong-doer occupies everywhere a foremost place in their system, but the origin of wrong is ever mysterious to them. It is a hereditary curse, which affects them with weird influence, drawing unconscious or even unwilling feet into the snares of fate; or it is an awful preordination of the gods themselves, interfering arbitrarily to force an unloved race into crime, in order that they may be subjected to punishment. Rarely, indeed, does straightforward personal guilt and shame suffice, as in Clytemnestra's case, to furnish a simple motive for a criminal act; otherwise than thus must it ever be accounted for. It is the treachery of Pelops which suggests the cruelty of Atreus, which requires the doom of Agamemnon, which makes Clytemnestra's murder necessary, and which condemns Orestes to the pursuit of the Furies. On the other hand, the miserable fate of Ædipus is entirely arbitrary: here there is not even the excuse of any hereditary guilt, for Laius seems to have been innocent enough, and even pious; and it does not occur to any one to blame him for the abject cruelty with

which he abandoned the child who, as the oracle prophesied, should slay him. The whole unhappy family are betrayed into unconscious crime: Laius is killed in a scuffle such as would sit light on any warlike traveller's conscience, who knew nothing of him but that he blocked the way; and in all the after-incidents, Ædipus is absolutely blameless—a victim more than a criminal. This is perhaps not the place to inquire whence comes the curious tendency, which runs through the entire poetry of this great nation, to throw the blame of evil upon some one beyond its immediate perpetrator—either on the gods themselves, who exercise vengeance on the evil when done, or on the hereditary curse of an ancestor's sin. This of course but postpones the question a little, since if Agamemnon's house is cursed for the treachery of Pelops, we are driven to ask how Pelops was moved to treachery, and whether he, too, had a hereditary malediction upon him? Such a discussion, however, is too great for us; but it is very curious to note in these later days a tendency which grows among the philosophical classes to refer the evil tendencies we see around us to ancestral causes, and to make every man, so to speak, the shadow of his grandfather—which is rather hard upon the grandfather, and not, we think, a very good moral foundation for any man. Those who are disposed towards this modern philosophical sentiment, will find it in full detail in the cycle of story which centres in Agamemnon. Thus the world goes on in a perpetual round, and reasoning comes back to link itself on at the extreme opposite end to reasoning, all the ages notwithstanding—a curious thought.

Euripides is more tender, more thoughtful, more modern, if we may use such a word, than either of his great Elder Brethren. There is perhaps no Greek drama so popularly known as another gloomy and terrible story, which comes to us from his hand, and to which music has lent all its charms in our own day—the story of Medea. Women are not supposed to have had much respect from the Greeks, and indeed are addressed contemptuously enough, wherever, in the stir of strife and arms, even a gentle Andromache—even a sympa-

thizing chorus—come in the warrior's way. But where Antigone is a possible character, there can be no general debasement, we should suppose, of that half of the world which, being for the most part voiceless, and always swordless, gets such hard treatment from primitive man, both civilised and uncivilised. Euripides even, we are told, was a misogynist, a hater and reviler of women; notwithstanding which he has left behind the matchless figure of Alcestis, and the great, sad, and terrible Medea, the self-sacrificing and self-avenging woman, each perfect in her kind, and each so infinitely superior to the man with whom she is connected and contrasted, that the reader might suppose the contrary to be the case, and accuse the poet, as female writers of fiction are sometimes accused, of having celebrated the wife at the expense of the husband. Mr. Bodham Donne, who is, in the series of Ancient Classics, the interpreter of Euripides, makes a half apology for linking the names of Medea and Alcestis; but we think he is perfectly correct in doing so, and that the contrast is a natural one, which must strike all thoughtful readers of these two great productions. Medea is the woman wronged and lashed to fury, whose wrongs would plead eloquently for her before any tribunal, had she not taken the remedy in her own hands, and, driven desperate by misery and despair, quenched the flame of her just but awful passion in crime and blood. She is nobler, loftier, truer, than those who wrong her, and in the fury and bitterness of her injury, her strong nature takes terrible vengeance. Alcestis, too, is a greater soul than all the small beings about, and the petty, life-loving husband by her side; and she, too, takes her noble vengeance, in her kind, and dies for the weakling with a love which is full of ineffable compassion, tinged, who can doubt it, with a soft, unacknowledged, and indeed unconscious contempt. It is the same great spirit in its two different manifestations—the moral and the unmoral: the one prompt to save, ready to endure, accepting from the height of noble compassion and tenderness, with a generous pride, whatever suffering may be necessary to spare the less courageous and less strong; the other, who might also

have been great enough for such a sacrifice, stung by the stabs and pricks to which she is subject, into wild self-assertion, wild vindication of a power to curse and desolate, when her power to bless and succor has met with no appreciation. The Medea is at once the complement and the antipodes of the Alcestis. She is no vulgar murderer, no common fury, but a creature all afame with wrong; the tears scorched out of her eyes and the milk from her bosom by passionate misery and injury, by the spurns of the unworthy, and the cold cruelty of sordid souls. Alcestis has no wrong but that silent, perhaps unconscious, injury of fate never to be remedied, which has made her love her inferior—not merely wed him, but love him, a deeper depth. It is not his fault, nor her fault, nor is it in her to withdraw her tenderness; but she dies for him—a greater involuntary revenge. Alcestis is greater than Medea in her lofty but soft generosity; heroic yet ever pure-womanly. She is one of the noblest conceptions ever revealed to the world—too noble almost, too delicate for the primitive mind to fathom, and which commonplace imagination of the sentimental kind has travestied into a mere ecstatic, love-sick woman, delighted with maudlin fondness to sacrifice herself to her demigod. But Euripides knew better. These two women, so full of that delicate complexity of feeling which belongs rather to the modern than to the ancient drama, are the very crown of his art. We are tempted once more, notwithstanding our distrust of translation, to subjoin here a version of Medea's wonderful soliloquy before the murder of her children, which will show the reader how little like the vulgar murderer of the common imagination was this impassioned but miserable mother. She has just given an imperious order to the messenger, who tells her that her children are to be left behind and not to share her banishment, to go in and provide for their immediate wants. Then, in the conflict of her heart produced by this news, she addresses them: "Now have you a home," she cries, "a city in which you can live, bereft of your mother;"

"While I an exile go
Into another land: no place for me

To bless you, or to see your happiness,
To sanctify the marriage and the wife ;
Or, as is fit, to hold the nuptial torch.
Wretch that I am, destroyed by my own will !
I should have reared you, dearest, differently,

Have toiled and labored in some other way
To nurture you : since when I brought you forth

I bore a grief, a trouble to myself.
Yet sure, ill-fated one, I once had hopes
That you would nurse me in my grey old age
And when I died adorn my decent limbs
For burial—much desired offices.
But now that tenderest hope has died away.
Deprived of you, sad will be life to me
And painful ; passed into another home,
You will ne'er more your mother see. Oh woe !

Why do ye gaze upon me with your eyes,
Those dearest eyes, my children? yea, and smile,

That lovely smile which is to be your last.
Ah me, what shall I do ? my courage flies
When these bright faces thus I gaze upon.
I cannot do it ! long-formed plans, farewell.
I will carry forth my children from this land.
Why should I, for no end except to grieve
Their wicked father by their woes, on me
Bring double load of harm ? I will not do it !

Hence, schemes of ill !—But yet, what fate is mine—

A laughing-stock to all my enemies,
Wreaking no vengeance on them ; I must do it !

Must dare the deed, although my coward heart

Struggles with weak and feeble reasonings.
Go in, my children. If there's any here
Who from the sight of this my sacrifice
Shrinks, let him look to't for himself, for I
Stay not my hand !

Oh cruel spirit, leave me !
Do not this crime ? Oh spare them, wretched one—

Spare thine own children ! In another land
How will these dear companions glad thee ?
No !

No, by the dread avengers of all crime
Who dwell in shades below, I will not leave
My boys to hostile influence of my foes—

'Tis plain that they must die—if they must die,
Then I, who bore, will slay. This is ordain'd.

I would speak to my sons—come hither, boys,
And give your mother your right hands to kiss.

Oh dear, dear hands ! oh sweetest mouths !
bright looks !

Great bearing of my children ! In the realms
Below, may happiness be yours ! for here
Your father has destroyed all pleasantness.
Oh dear embrace ! how soft and warm the touch,

How sweet, how fresh and fragrant is the breath

Of my dear children ! Go ! Go ! to the house !—

I cannot look upon your faces. Go !
Ah, now am I o'erwhelmed and lost in woes.
Now see I well how great the evil is
Which I have planned ; but anger in my breast

Raging, and stronger than all counsels mild,
Causes this crime, as all the crimes on earth."

We have not attempted to follow the authors of these most instructive volumes fully in the examination of each poet and his works which they make. But no English reader need plead either difficulty or tediousness as his excuse in future for ignorance of the great Greek writers who were first in the field of poetry. Mr. Collins's account and narrative of the *Odyssey* is as full and interesting as that of the *Iliad*; and Mr. Copleston, Mr. Bodham Donne, and Mr. Clifton Collins, to whom respectively we owe the *Æschylus*, *Sophocles*, and *Euripides*, have discharged their task with accuracy and spirit. Nor ought we to omit mention of the *Hesiod* of Mr. Davies, because didactic poetry happens to be less attractive to our individual mind than the great conceptions of the epic and the drama. The homely wisdom and rural lore of that immemorial poet is as curious—if less interesting—as the high tales which have lasted through so many ages; for old earth and her various seasons, her crops and her sheaf-bindings, her dewy seed-times and winter slumbers, are older even than Agamemnon and Achilles—older than Alcestis and Medea; and few things can be more striking or touching than to see, across the long centuries, those quiet shadowy pictures of the flocks and fields, and the clouds gathering around the setting sun, which of old, as now, take

"A sober coloring from the eye
Which hath kept watch o'er man's mortality."

Thus the lofty poetry of the Greeks is set before the English reader, worthily and modestly, without any strain after the unattainable, but in such a way as to refresh the waning memory, and to give distinction and intelligibility to that vague knowledge broken up into bewildering fragments like a shattered mirror, which most of the intelligent unlearned already possess of those fables which are interwoven more or less into all literature. The execution of the scheme, so far, is equal to the idea, and it would be difficult to say more.

We cannot feel that the comic drama of Greece is likely to commend itself in the same way to the modern and unclassical reader. The fun of Aristophanes, we fear, must remain for the special amusement of the scholar—its subjects and allusions being too far off and obscure to take any hold of the nineteenth-century mind. We are beyond the reach of the man who makes fun out of Socrates and Euripides; and it requires, we fear, a larger amount of knowledge than the ordinary English reader possesses, ever to appreciate the curiously vivid picture of Athens which, even when the jokes pall, may still be got out of these comedies. They are, however, scarcely comedies at all (at least in our sense of the word), but rather satires upon existing conditions or tendencies of society. The 'Clouds,' for instance—perhaps the most famous of them—is directed against the "Thinking Shops" of the Sophists, and their supposed faculty for making the worse appear the better cause. It would seem to us a curious blunder on the part of Aristophanes to make Socrates the impersonation of his philosophical humbug; but it is evident the Athenian audience had no such idea. One of the strongest indications, indeed, that this clever and intellectual audience was still in a rudimentary state of development, is its intense appreciation of personal abuse, and that rude and common fun which finds its point in individual peculiarities. No doubt, the intense local feeling of a city, which is all the world to its inhabitants, gives additional force at all times to personal satire; but nothing less than the tremendous seriousness of a Dante can ever give dignity to this mode of treating social affairs. Personal satire is emphatically a thing of a day, or at most of a generation; and as there is nothing which has a more facile and immediate success, it is but justice that it should have a shorter life than other works of genius. Nothing but scholarly prejudice could ever believe, we think, that the man who creates a *Medea* is of no higher rank than the man who caricatures a *Euripides*. We feel that even to say so much is to venture upon a kind of *lèse-majesté*; but we speak with the boldness of one who sits in the seat of the unlearned, and represents the

modern English, not the classical, judgment. The one of Aristophanes' plays which, in our own opinion, will give the reader most insight into Athenian society, is the one characterised by Mr. Collins as "perhaps the least amusing to a modern reader"—the comedy of the 'Wasps.' The hero of this is apparently a commonplace ordinary Athenian of middle age, whose passion for the law-courts is so great that his family cannot keep him out of them. He is a juryman, one of those volunteer judges who sat all day long in Athens, as many as six thousand of them, when all the courts were open, receiving a payment of threepence a-day, and taken vaguely from the body of the people, the only preference apparently being with those who rose early enough to find a place upon the benches, ever crowded. Philocleon, the hero of the 'Wasps,' "neglects his person, hardly sleeps at night for thinking of his duties in the court, and is off before daylight in the morning, to secure a good seat. . . . He keeps in his house 'a whole beach' of little round pebbles, that he may always have one ready for giving his vote; and goes about holding his three fingers pinched together as if he had got one between them ready to slip into the ballot-box." The object of the play is to show the grotesque means employed to cure this paterfamilias of his weakness. It will be much more interesting to the English reader, however, to reflect that this is the kind of man who condemned Socrates to death, and that with this chance assembly of thick-headed (if it is allowable to suppose that thick-heads existed in Athens), commonplace nobodies, lay the cast of life or death for every noble Athenian—an idea which will convey a thrill of alarmed sensation to the ignorant who perhaps never fully realised it before.

The name of Socrates brings us at once to that noblest and purest of all ancient literature which is represented by Plato. The reader who knows nothing of Plato in his native tongue is apt to think of him as a philosopher very much indeed in advance of his time, and with wonderful gleams in him of higher knowledge, but still, succinctly and beyond all else, a philosopher—one of those sophists whose very wisdom has

come down to us as representing intellectual hair-splitting and worldliness, if not craft and falsity. But the author of the 'Dialogues' is more than a philosopher. He has left to us perhaps the very noblest picture of a man that has ever been drawn by uninspired pencil. There are many bold critics, indeed, who have compared the Socrates of Plato to the Christ of the four Gospels, with a curious absence of poetical insight and that higher faculty of perception which can discriminate between two things without being contemptuous of either. Socrates, old, tolerant, humorous, unimpassioned, is as completely different from the divine youth of the Redeemer as could be imagined; nor could Art itself have conceived a more entire contrast than that which exists between this highest philosophic man and the more glorious perfect presence of the Son of God. But putting aside this profane comparison, there has never occurred to any man that we know of, through all these centuries, the conception of such a figure as this of the barefooted Greek, poorest and wisest of men, with such a humorous, benign light of humanity about him, such noble, tolerant breadth of understanding, and serene grandeur of spirit. To those to whom Socrates is new, the effect must be such as it is difficult to estimate; and the wonder is, that so little enthusiasm concerning him has lasted even among the sacerdotal class of scholars, who are as jealous as any priesthood of the objects of their recondite worship. The Platonic philosophy has been the origin of many schools, of infinite discussion, of books and literary productions without number; but Socrates is greater than the philosophy which springs from him, more noble than words ever were. Plato is the mirror of his master, holding him up with loyal devotion, and that infinite delicacy of reflection which makes the reader sometimes doubt whether a presentment so noble does not owe something of its charm to the medium through which we view it. This is a question which can never now be decided. It is very apparent, indeed, that the Socrates whom Xenophon saw was not the glorified Socrates who is visible to us through the luminous eyes of Plato; but the soldier-historian was

but little likely to grasp the moral lineaments of a man whose character was so unlike his own. We have, we hope, taken sufficient pains to distinguish between the translation of prose and that of poetry, so much as our opinion may be worth in the matter; and there is no doubt that a fuller and truer appreciation of Plato may be obtained from Professor Jowett's work than we could hope to have, through a similar medium, of *Æschylus* or *Euripides*. But still we doubt whether the general reader will have courage to tackle the 'Dialogues,' even as rendered by the accomplished master of Balliol; and the knowledge which he can acquire from the little volume of this series, so well executed by Mr. Clifton Collins, of this greatest classic figure, will give him such a new friend in the world of letters as no man willingly would live without. The picture is bright as daylight, minute yet broad. We need not insist, as everybody insists, upon the personal aspect of the philosopher. No doubt there was even in his ugliness a charm of benignity which took all sting out of that genial humor, so searching and full of fine perception, yet so sympathetic to the modest and true, which turned every interlocutor outside in, demolished pretence, and extinguished vanity, but never repelled the gentle soul. We follow the sage through his historian's beautiful pages—to that shaded seat under the broad leaves of the sycamore on the banks of the Ilissus, and hear the murmur of the running water, and the sharp song of the cicadas in the trees, as he discourses, with the laugh never far distant from his eyes, yet the deepest tender feeling in his soul, on love, on pathos, on eloquence, on the recollection of some heavenly loveliness seen in a primeval glory, which gives a visionary charm in the true lover's eyes to earthly beauty, but makes the common soul think him mad, as, softly mocking, laughing to veil the deeper inspiration in his heart, the philosopher himself has just done; or to the feast, where, amid all the dissipation of young Athens, he sits smiling, talking, looking on at their extravagances, without, so far as we can see, any immediate reprobation of them, though every word he says is on the side of temperance and virtue; or to the

courtyard of the classic school—to the playing-fields let us say—where the boys are all about, wrestling, trying their young strength, and where the philosopher, attaching himself to a pair of youthful friends, discourses with them of friendship, what it is, with all his usual genial banter and tender wisdom. "Here is a jest," he says; "you two boys, and I an old boy, who would fain be one of you, imagine yourselves to be friends, and we have not as yet been able to discover what a friend is!" How the reader sympathises with the boys when their tutors appear, "like an evil apparition," to send them back to books and bed from this delightful talk! Thus he goes about the populous streets, wherever men are, talking to great and small, fond of the splendid dandy Alcibiades, not less fond of the blacksmith, who affords him so many illustrations of life, reproofing nobody, yet cunningly driving every man who defends his poor system of abject life into a corner, leaving a suggestive question like a seed in his mind. It is two thousand years since this picture was made, and there is nothing like it in all the literature with which the world has been flooded since.

It is needless to go over the still more wonderful death in which the story culminates, and which, so far as we know, has scarcely a parallel any more than the life has. The reader will find it worth his while to be uninstructed, so as to go over this scene with freshness as something new. Injudicious sceptics have compared this, also, to the central event of Christianity, with equal bad taste and want of perception. Once more, the two events are as different as heaven and earth. The death of Socrates is the ideal death of a good man, such as any one for himself would wish to die; and indeed a greater number of us emulate something of its calm than have any right to do so; for death is of all others the moment in which Nature refuses to be sensational, and to all appearance takes the inevitable most easily. Socrates is old, his natural life nearly over, and his mind fully accepts the idea of the end; even, we are told, with his perpetual gentle banter, he offers a ridiculously small price as an alternative to the indignation of the *épicier* multitude who, if we are to be guided

by Aristophanes, sit as judge of his cause, as of others. Thus, with a soft half-jest at his condemners, he accepts at seventy the conclusion which, doubtless, the philosopher felt could scarcely have come in a milder form. Nor does his genial power of finding a certain tender amusement in the gravest things of life and death—true humor most exquisite of all human faculties—fail him through the last chapter of his existence. When he is asked how he would like to be buried, he answers with his old smile. "Howsoever you like, so long as you do not think it is *me* that you are burying," he says; and he calls upon the weeping spectators round him, with that gleam of soft laughter in his eyes, to be sureties for him to Crito, that the dead thing that is to be buried will not be Socrates. How serene, how beautiful is the story! Soft sunset fading over the sweet purple shadows of the hills, the even-song breathing into the air, the gentle dews falling, everything speaking of rest and a better home.

But if the reader knows of anything more absolutely different from that great scene on Calvary, which the foolish doubter has compared it to, we do not know in what language to speak to him. Each picture is infinitely true to its conditions; but were there no deeper question involved, it would still be evident that no comparison could hold between things so fundamentally unlike.

Socrates is the great glory of Plato. His divine philosophy—"musical as is Apollo's lute"—has lasted, indeed, when empires and dynasties have crumbled, long ages after all the economy of his own nation has broken up and come to nothing. But not only does Plato give the credit of all to his master, but it is certain that the master himself, the centre of all, gives the highest interest to the disciple's work, and raises Plato above philosophy to the level of the poet and creator, since not even Homer himself has made so noble a contribution to the records of human history. The reader will find a clear and interesting account of the other works of the philosopher in Mr. Collins's interesting volume, and specially of his 'Republic,' with its curious mixture of enlightened thought and latent savagery, the ideal framework of existence which could on-

ly be possible when philosophers should be kings. It is wonderful to us to think that the benign Socrates should, among all the other ordinances of his lofty wisdom, have ordained that, in his ideal state, while the children of the best races should be carefully reared, those of the lower kinds of humanity should be "exposed," in order thus to improve the race by weeding out its worst specimens! But there is no more significant indication of the difference between man and his ideas. These ideas must be more or less progressive—they advance in spite even of the minds that unconsciously originate or reject them; but man does not progress in anything like a similar degree. The common mass may be slowly elevated by the sway of rising thought, and all those modifications of sentiment which Christianity has been the chief instrument in creating; but man the type of mankind—such a man as Socrates—can never be surpassed. Such a being appears rarely to make a wonder in the ages; and working long and slowly, God creates, here and there through the world, his peer and equal—but not his superior. We do not know whether, if Sir Isaac Newton had been fortunate enough to have a Plato for his biographer, he might have found some place near Socrates in the eye of the world; but as he had not that extreme good fortune nor any other philosopher that has lived since, Socrates stands unrivalled—a man who never yet has had a peer to go up and stand beside him, so that all the world may see. *En revanche*, if Sir, Thomas More's 'Utopia' had counselled infanticide, England would have driven that thinker from her heart without doubt or hesitation. Men's thoughts, therefore, (may not we conclude?) grow and mount higher as time goes on, piling thought on thought; but men themselves have no such advantage of a gradually elevating platform, but must begin, each upon his own character and genius, as in Socrates's days; and no one yet has caught up Socrates on the serene eminence which he reached two thousand years ago.

Our pace scarcely permits us to linger upon the historians of Greece—the garrulous Herodotus, with his many tales, and wonderful wealth of world-ob-

servation, though critical history had had not come into being in his days, and the charm of the story was still the strongest charm on earth; and the stout captain and soldier of fortune, Xenophon, whose picturesque narrative is at once autobiography and history. Such productions as theirs afford us less to comment upon in a brief review like this than those works of imagination or of character which we have already noted; though, indeed, the old traveller, with his far-gathered lore, and the skilful and brave leader, who conducts before our very eyes one of the most wonderful marches on record—the retreat of the Ten Thousand,—are each in their way as individual as any historical characters ever will be. They furnish us at once with the tradition of past history, and the facts of the immediate present in which the younger writer was so busy an actor. The present of Xenophon is to us far buried in the mists of the past; but yet his skilful addresses to his soldiers, his wise expedients for their safe-conduct, and many picturesque incidents in their progress, are as vivid and real as any contemporary story; and the reader is not likely to find his interest flag either in Sir Alexander Grant's admirable account of the soldier-historian and his brilliant career, or in Mr. Swayne's pleasant *résumé* of the chronicles of the father of history. Neither have we room for more than a passing notice of the graceful classic wreath, well-chosen and well-befitting garland, with which Lord Neaves's well-known taste and scholarship has crowned the series. This dainty and charming little volume belongs, by right of the native language of its flower-gatherings, to that Greek half of the classics which we have here briefly discussed; but the graceful finish of the whole may appropriately be noted at a later period, when we have glanced, as we propose to do on another occasion, over that second chapter of literary history, the noble literature of the Latins, which is a step nearer ourselves, and by consequence a step further from the high originality of primitive times, than that which we have just discussed.

Let us note, in conclusion, the singular fact, not unparalleled indeed, but always remarkable, that the great Greeks

whose works we have ventured to pass in brief survey—the dramatists, philosophers, and historians—from *Æschylus* down to *Xenophon*, are almost contemporaries, every one of them having lived during at least part of the lifetime of the others. Such a blaze of genius is wonderful whenever it appears, and perhaps more wonderful the first time it appears than when the prodigy comes round again. We know, or think we know, something about the movements of those celestial lights far out of our reach, which we peer at through the lenses of Science, and pursue through all the recesses of the spheres, with pitiless precision of arithmetic. We know when comets come and go, and when the great earth-shadow will darken the sun; but none of all our calculations has helped us

to determine when such a glow of kindred stars as brightened all over Athens the violet skies of Greece, four hundred years before the rising of our Christian era, may be expected to appear again. It came unwatched, unexpected, in the days of Augustus. Later it has come in the same silent, sudden way, ever taking the world by surprise—to Italy, to France, to England, and, last of all, to Germany. But how this great light comes and goes, though it concerns us much more nearly than any comet, no scientific calculation has ever helped us to foretell: so wise are we in some things, so ignorant in others; as Socrates himself was, and Plato; and as it is to be supposed men will continue to be till the end of the world.—*Blackwood's Magazine*.

ON THE HYPOTHESIS THAT ANIMALS ARE AUTOMATA, AND ITS HISTORY.

BY PROFESSOR T. H. HUXLEY.

THE first half of the seventeenth century is one of the great epochs of biological science. For though suggestions and indications of the conceptions which took definite shape at that time are to be met with in works of earlier date, they are little more than the shadows which coming truth casts forward; men's knowledge was neither extensive enough, nor exact enough, to show them the solid body of fact which threw these shadows.

But, in the seventeenth century, the idea that the physical processes of life are capable of being explained in the same way as other physical phenomena, and, therefore, that the living body is a mechanism, was proved to be true for certain classes of vital actions; and, having thus taken firm root in irrefragable fact, this conception has not only successfully repelled every assault which has been made upon it, but has steadily grown in force and extent of application, until it is now the expressed or implied fundamental proposition of the whole doctrine of scientific Physiology.

If we ask to whom mankind are indebted for this great service, the general voice will name William Harvey. For, by his discovery of the circulation of the blood in the higher animals, by his explanation of the nature of the mechanism by

which that circulation is effected, and by his no less remarkable, though less known, investigation of the process of development, Harvey solidly laid the foundations of all those physical explanations of the functions of sustentation and reproduction which modern physiologists have achieved.

But the living body is not only sustained and reproduced: it adjusts itself to external and internal changes; it moves and feels. The attempt to reduce the endless complexities of animal motion and feeling to law and order is, at least, as important a part of the task of the physiologist as the elucidation of what are sometimes called the vegetative processes. Harvey did not make this attempt himself; but the influence of his work upon the man who did make it is patent and unquestionable. This man was René Descartes, who, though by many years Harvey's junior, died before him; and yet, in his short span of fifty-four years, took an undisputed place not only among the chiefs of philosophy, but amongst the greatest and most original of mathematicians; while, in my belief, he is no less certainly entitled to the rank of a great and original physiologist; inasmuch as he did for the physiology of motion and sensation that which Harvey had done for the circulation of the blood, and opened

up that road to the mechanical theory of these processes which has been followed by all his successors.

Descartes was no mere speculator, as some would have us believe: but a man who knew of his own knowledge what was to be known of the facts of anatomy and physiology in his day. He was an unwearied dissector and observer; and, it is said, that, on a visitor once asking to see his library, Descartes led him into a room set aside for dissections, and full of specimens under examination. "There," said he, "is my library."

I anticipate a smile of incredulity when I thus champion Descartes' claim to be considered a physiologist of the first rank. I expect to be told that I have read into his works what I find there, and to be asked, Why is it that we are left to discover Descartes' deserts at this time of day, more than two centuries after his death? How is it that Descartes is utterly ignored in some of the latest works which treat expressly of the subject in which he is said to have been so great?

It is much easier to ask such questions than to answer them, especially if one desires to be on good terms with one's contemporaries; but, if I must give an answer, it is this: the growth of physical science is now so prodigiously rapid, that those who are actively engaged in keeping up with the present, have much ado to find time to look at the past, and even grow into the habit of neglecting it. But natural as this result may be, it is none the less detrimental. The intellect loses, for there is assuredly no more effectual method of clearing up one's own mind on any subject than by talking it over, so to speak, with men of real power and grasp, who have considered it from a totally different point of view. The parallax of time helps us to the true position of a conception, as the parallax of space helps us to that of a star. And the moral nature loses no less. It is well to turn aside from the fretful stir of the present and to dwell with gratitude and respect upon the services of those "mighty men of old who have gone down to the grave with their weapons of war," but who, while they yet lived, won splendid victories over ignorance. It is well, again, to reflect that the fame of Descartes filled all Europe, and his authority overshadowed it, for a century; while now, most of

those who know his name think of him, either as a person who had some preposterous notions about vortices and was deservedly annihilated by the great Sir Isaac Newton; or as the apostle of an essentially vicious method of deductive speculation; and that, nevertheless, neither the chatter of shifting opinion, nor the silence of personal oblivion, have in the slightest degree affected the growth of the great ideas of which he was the instrument and the mouthpiece.

It is a matter of fact that the greatest physiologist of the eighteenth century, Haller, in treating of the functions of nerve, does little more than reproduce and enlarge upon the ideas of Descartes. It is a matter of fact that David Hartley, in his remarkable work the "Essay on Man," expressly, though still insufficiently, acknowledges the resemblance of his fundamental conceptions to those of Descartes; and I shall now endeavor to show that a series of propositions, which constitute the foundation and essence of the modern physiology of the nervous system, are fully expressed and illustrated in the works of Descartes.

I. *The brain is the organ of sensation, thought, and emotion; that is to say, some change in the condition of the matter of this organ is the invariable antecedent of the state of consciousness to which each of these terms is applied.*

In the "Principes de la Philosophie" (§ 169), Descartes says:—*

"Although the soul is united to the whole body, its principal functions are, nevertheless, performed in the brain; it is here that it not only understands and imagines, but also feels; and this is effected by the inter-mediation of the nerves, which extend in the form of delicate threads from the brain to all parts of the body, to which they are attached in such a manner, that we can hardly touch any part of the body without setting the extremity of some nerve in motion. This motion passes along the nerve to that part of the brain which is the common sensorium, as I have sufficiently explained in my Treatise on Dioptrics; and the movements which thus travel along the nerves, as far as that part of the brain with which the soul is closely joined and united, cause it, by reason of their diverse

* I quote, here and always, Cousin's edition of the works of Descartes, as most convenient for reference. It is entitled "Œuvres complètes de Descartes," publiées par Victor Cousin. 1824.

characters, to have different thoughts. And it is these different thoughts of the soul, which arise immediately from the movements that are excited by the nerves in the brain, which we properly term our feelings, or the perceptions of our senses."

Elsewhere,* Descartes, in arguing that the seat of the passions is not (as many suppose) the heart, but the brain, uses the following remarkable language:—

"The opinion of those who think that the soul receives its passions in the heart is of no weight, for it is based upon the fact that the passions cause a change to be felt in that organ; and it is easy to see that this change is felt, as if it were in the heart, only by the intermedium of a little nerve which descends from the brain to it; just as pain is felt, as if it were in the foot, by the intermedium of the nerves of the foot; and the stars are perceived, as if they were in the heavens, by the intermedium of their light and of the optic nerves. So that it is no more necessary for the soul to exert its functions immediately in the heart, to feel its passions there, than it is necessary that it should be in the heavens to see the stars there."

This definite allocation of all the phenomena of consciousness to the brain as their organ, was a step the value of which it is difficult for us to appraise, so completely has Descartes' view incorporated itself with every-day thought and common language. A lunatic is said to be "crack-brained" or "touched in the head," a confused thinker is "muddle-headed," while a clever man is said to have "plenty of brains;" but it must be remembered that at the end of the last century a considerable, though much over-estimated, anatomist, Bichat, so far from having reached the level of Descartes, could gravely argue that the apparatuses of organic life are the sole seat of the passions, which in no way affect the brain, except so far as it is the agent by which the influence of the passions is transmitted to the muscles.†

Modern physiology, aided by pathology, easily demonstrates that the brain is the seat of all forms of consciousness, and fully bears out Descartes' explanation of the reference of those sensations in the viscera which accompany intense emotion, to these organs. It proves, directly, that those states of consciousness which we call sensations are the immediate consequent

of a change in the brain excited by the sensory nerves; and, on the well-known effects of injuries, of stimulants, and of narcotics, it bases the conclusion that thought and emotion are, in like manner, the consequents of physical antecedents.

II. *The movements of animals are due to the change of form of muscles, which shorten and becomes thicker; and this change of form in a muscle arises from a motion of the substance contained within the nerves which go to the muscle.*

In the "Passions de l'Âme," Art. vii., Descartes writes:—

"Moreover, we know that all the movements of the limbs depend on the muscles, and that these muscles are opposed to one another in such a manner, that when one of them shortens, it draws along the part of the body to which it is attached, and so gives rise to a simultaneous elongation of the muscle which is opposed to it. Then if it happens, afterwards, that the latter shortens, it causes the former to elongate, and draws towards itself the part to which it is attached. Lastly, we know that all these movements of the muscles, as all the senses, depend on the nerves, which are like little threads or tubes, which all come from the brain, and, like it, contain a certain very subtle air or wind, termed the animal spirits."

The property of muscle mentioned by Descartes now goes by the general name of contractility, but his definition of it remains untouched. The long-continued controversy whether contractile substance, speaking generally, has an inherent power of contraction, or whether it contracts only in virtue of an influence exerted by nerve, is now settled in Haller's favor; but Descartes' statement of the dependence of muscular contraction on nerve holds good for the higher forms of muscle, under normal circumstances: so that, although the structure of the various modifications of contractile matter has been worked out with astonishing minuteness—although the delicate physical and chemical changes which accompany muscular contraction have been determined to an extent of which Descartes could not have dreamed, and have quite upset his hypothesis that the cause of the shortening and thickening of the muscle is the flow of animal spirits into it from the nerves—the important and fundamental part of his statement remains perfectly true.

The like may be affirmed of what he

* "Les Passions de l'Âme," Article xxxiii.

† "Recherches physiologiques sur la Vie et la Mort." Par Xav. Bichat. Art. Sixième.

says about nerve. We know now that nerves are not exactly tubes, and that "animal spirits" are myths; but the exquisitely refined methods of investigation of Dubois-Reymond and of Helmholtz have no less clearly proved that the antecedent of ordinary muscular contraction is a motion of the molecules of the nerve going to the muscle; and that this motion is propagated with a measurable, and by no means great, velocity, through the substance of the nerve towards the muscle.

With the progress of research, the term "animal spirits" gave way to "nervous fluid," and "nervous fluid" has now given way to "molecular motion of nerve-substance." Our conceptions of what takes place in nerve have altered in the same way as our conceptions of what takes place in a conducting wire have altered, since electricity was shown to be not a fluid, but a mode of molecular motion. The change is of vast importance, but it does not affect Descartes' fundamental idea, that a change in the substance of a motor nerve propagated towards a muscle is the ordinary cause of muscular contraction.

III. The sensations of animals are due to a motion of the substance of the nerves which connect the sensory organs with the brain.

In "La Dioptrique" (Discours Quatrième), Descartes explains, more fully than in the passage cited above, his hypothesis of the mode of action of sensory nerves:—

"It is the little threads of which the inner substance of the nerves is composed which subserves sensation. You must conceive that these little threads, being enclosed in tubes, which are always distended and kept open by the animal spirits which they contain, neither press upon nor interfere with one another, and are extended from the brain to the extremities of all the members which are sensitive—in such a manner that the slightest touch which excites the part of one of the members to which a thread is attached, gives rise to a motion of the part of the brain whence it arises, just as by pulling one of the ends of a stretched cord, the other end is instantaneously moved. . . . And we must take care not to imagine that, in order to feel, the soul needs to behold certain images sent by the objects of sense to the brain, as our philosophers commonly suppose; or, at least, we must conceive these images to be something quite different from what they suppose them

to be. For, as all they suppose is that these images ought to resemble the objects which they represent, it is impossible for them to show how they can be formed by the objects received by the organs of the external senses and transmitted to the brain. And they have had no reason for supposing the existence of these images except this: seeing that the mind is readily excited by a picture to conceive the object which is depicted, they have thought that it must be excited in the same way to conceive those objects which affect our senses by little pictures of them formed in the head; instead of which we ought to recollect that there are many things besides images which may excite the mind, as for example signs and words, which have not the least resemblance to the objects which they signify."*

Modern physiology amends Descartes' conception of the mode of action of sensory nerves, in detail, by showing that their structure is the same as that of motor nerves; and that the changes which take place in them, when the sensory organs with which they are connected are excited, are of just the same nature as those which occur in motor nerves, when the muscles to which they are distributed are made to contract: there is a molecular change which in the case of the sensory nerve is propagated towards the brain. But the great fact insisted upon by Descartes, that no likeness of external things is, or can be, transmitted to the mind by the sensory organs; but that between the external cause of a sensation and the sensation, there is interposed a mode of motion of nervous matter, of which the state of consciousness is no likeness, but a mere symbol, is of the profoundest importance. It is the physiological foundation of the doctrine of the relativity of knowledge, and a more or less complete idealism is a necessary consequence of it.

For of two alternatives one must be true. Either, consciousness is the function of a something distinct from the brain, which we call the soul, and a sensation is the mode in which this soul is affected by the motion of a part of the

* Locke ("Human Understanding," Book II., chap. viii. 37) uses Descartes' illustration for the same purpose, and warns us that "most of the ideas of sensation are no more the likeness of something existing without us, than the names that stand for them are the likeness of our ideas, which yet, upon hearing, they are apt to excite in us," a declaration which paved the way for Berkeley.

brain; or, there is no soul, and a sensation is something generated by the mode of motion of a part of the brain. In the former case, the phenomena of the senses are purely spiritual affections; in the latter they are something manufactured by the mechanism of the body, and as unlike the causes which set that mechanism in motion, as the sound of a repeater is unlike the pushing of the spring which gives rise to it.

The nervous system stands between consciousness and the assumed external world, as an interpreter who can talk with his fingers stands between a hidden speaker and a man who is stone deaf—and Realism is equivalent to a belief on the part of the deaf man, that the speaker must also be talking with his fingers. "Les extrêmes se touchent;" the shibboleth of materialists that "thought is a secretion of the brain," is the Fichtean doctrine that "the phenomenal universe is the creation of the Ego," expressed in other language.

IV. The motion of the matter of a sensory nerve may be transmitted through the brain to motor nerves, and thereby give rise to contraction of the muscles to which these motor nerves are distributed; and this reflection of motion from a sensory into a motor nerve may take place without volition, or even contrary to it.

In stating these important truths, Descartes defined that which we now term "reflex action." Indeed he almost uses the term itself, as he talks of the "animal spirits" as "*réfléchis*,"* from the sensory into the motor nerves. And that this use of the word "reflected" was no mere accident, but that the importance and appropriateness of the idea it suggests was fully understood by Descartes' contemporaries, is apparent from a passage in Willis' well-known essay, "De Animâ Brutorum," published in 1672, in which, in giving an account of Descartes' views, he speaks of the animal spirits being diverted into motor channels, "velut undulatione reflexâ."†

* "Passions de l'Âme," Art. xxxvi.

† "Quamcumque Bruti actionem, velut automati mechanici motum artificialiem, in eo consistere quod se primâ sensibile aliquod spiritus animales afficiens, eosque introrsum convertens, tensionem excitat, à qua mox

Nothing can be clearer in statement, or in illustration, than the view of reflex action which Descartes gives in the "Passions de l'Âme," Art. xiii.

After recapitulating the manner in which sensory impressions transmitted by the sensory nerves to the brain give rise to sensation, he proceeds:—

"And in addition to the different feelings excited in the soul by these different motions of the brain, the animal spirits, without the intervention of the soul, may take their course towards certain muscles, rather than towards others, and thus move the limbs, as I shall prove by an example. If some one moves his hand rapidly towards our eyes, as if he were going to strike us, although we know that he is a friend, that he does it only in jest, and that he will be very careful to do us no harm, nevertheless it will be hard to keep from winking. And this shows, that it is not by the agency of the soul that the eyes shut, since this action is contrary to that volition which is the only, or at least the chief, function of the soul; but it is because the mechanism of our body is so disposed, that the motion of the hand towards our eyes excites another movement in our brain, and this sends the animal spirits into those muscles which cause the eyelids to close."

Since Descartes' time, experiment has eminently enlarged our knowledge of the details of reflex action. The discovery of Bell has enabled us to follow the tracks of the sensory and motor impulses, along distinct bundles of nerve fibres; and the spinal cord, apart from the brain, has been proved to be a great centre of reflex action; but the fundamental conception remains as Descartes left it, and it is one of the pillars of nerve physiology at the present day.

V. The motion of any given portion of the matter of the brain excited by the motion of a sensory nerve, leaves behind a readiness to be moved in the same way, in that part. Anything which resuscitates the motion gives rise to the appropriate feeling. This is the physical mechanism of memory.

Descartes imagined that the pineal body (a curious appendage to the upper side of the brain, the function of which, if it have any, is wholly unknown) was the

idem spiritus, velut undulatione reflexâ de-nuo retrosum commoti atque pro concinno ipsius fabricæ organorum, et partium ordine, in certos nervos musculosque determinati, respectivos membrorum motus perficiunt."—WILLIS: "De Animâ Brutorum," p. 5. 1762.

instrument through which the soul received impressions from, and communicated them to, the brain. And he thus endeavors to explain what happens when one tries to recollect something:—

"Thus when the soul wills to remember anything, this volition, causing the [pineal] gland to incline itself in different directions, drives the [animal] spirits towards different regions of the brain, until they reach that part in which are the traces, which the object which it desires to remember has left. These traces are produced thus: those pores of the brain through which the [animal] spirits have previously been driven, by reason of the presence of the object, have thereby acquired a tendency to be opened by the animal spirits which return towards them, more easily than other pores, so that the animal spirits, impinging on these pores, enter them more readily than others. By this means they excite a particular movement in the pineal gland, which represents the object to the soul, and causes it to know what it is which it desired to recollect."*

That memory is dependent upon some condition of the brain is a fact established by many considerations—among the most important of which are the remarkable phenomena of aphasia. And that the condition of the brain on which memory depends, is largely determined by the repeated occurrence of that condition of its molecules, which gives rise to the idea of the thing remembered, is no less certain. Every boy who learns his lesson by repeating it exemplifies the fact. Descartes, as we have seen, supposes that the pores of a given part of the brain are stretched by the animal spirits, on the occurrence of a sensation, and that the part of the brain thus stretched, being imperfectly elastic, does not return to exactly its previous condition, but remains more distensible than it was before. Hartley supposes that the vibrations, excited by a sensory, or other, impression, do not die away, but are represented by smaller vibrations or "vibratiuncles," the permanency and intensity of which are in relation with the frequency of repetition of the primary vibrations. Haller has substantially the same idea, but contents himself with the general term "mutationes," to express the cerebral change which is the cause of a state of consciousness. These "mutationes" persist for a long time after the cause which gives rise to them has ceased to operate, and are

arranged in the brain according to the order of coexistence and succession of their causes. And he gives these persistent "mutationes" the picturesque name of *vestigia rerum*, "quæ non in mente sed in ipso corpore et in medulla quidem cerebri ineffabili modo incredibiliter minutis notis et copia infinita, inscriptæ sunt."† I do not know that any modern theory of the physical conditions of memory differs essentially from these, which are all children—*mutatis mutandis*—of the Cartesian doctrine. Physiology is, at present, incompetent to say anything positively about the matter, or to go further than the expression of the high probability, that every molecular change which gives rise to a state of consciousness, leaves a more or less persistent structural modification, through which the same molecular change may be regenerated by other agencies than the cause which first produced it.

Thus far, the propositions respecting the physiology of the nervous system which are stated by Descartes have simply been more clearly defined, more fully illustrated, and, for the most part, demonstrated, by modern physiological research. But there remains a doctrine to which Descartes attached great weight, so that full acceptance of it became a sort of note of a thorough-going Cartesian, but which, nevertheless, is so opposed to ordinary prepossessions that it attained more general notoriety, and gave rise to more discussion, than almost any other Cartesian hypothesis. It is that doctrine, that brute animals are mere machines or automata, devoid not only of reason, but of any kind of consciousness, which is stated briefly in the "Discours de la Méthode," and more fully in the "Réponses aux Quatrièmes Objections," and in the correspondence with Henry More.‡

The process of reasoning by which Descartes arrived at this startling conclusion is well shown in the following passage of the "Réponses":—

"But as regards the souls of beasts, although this is not the place for considering them, and

* Haller, "Prima Lineæ," ed. iii. *Sensus Interni*, diviii.

† "Réponse de M. Descartes à M. Morus." 1649. "Œuvres," tome x. p. 204. "Mais le plus grand de tous les préjugés que nous ayons retenus de notre enfance, est celui de croire que les bêtes pensent," &c.

* "Les Passions de l'Âme," xlvi.

though, without a general exposition of physics, I can say no more on this subject than I have already said in the fifth part of my *Treatise on Method*; yet, I will further state, here, that it appears to me to be a very remarkable circumstance that no movement can take place, either in the bodies of beasts, or even in our own, if these bodies have not in themselves all the organs and instruments by means of which the very same movements would be accomplished in a machine. So that, even in us, the spirit, or the soul, does not directly move the limbs, but only determines the course of that very subtle liquid which is called the animal spirits, which, running continually from the heart by the brain into the muscles, is the cause of all the movements of our limbs, and often may cause many different motions, one as easily as the other.

"And it does not even always exert this determination; for among the movements which take place in us, there are many which do not depend on the mind at all, such as the beating of the heart, the digestion of food, the nutrition, the respiration, of those who sleep; and, even in those who are awake, walking, singing, and other similar actions, when they are performed without the mind thinking about them. And, when one who falls from a height throws his hands forwards to save his head, it is in virtue of no ratiocination that he performs this action; it does not depend upon his mind, but takes place merely because his senses being affected by the present danger, some change arises in his brain which determines the animal spirits to pass thence into the nerves, in such a manner as is required to produce this motion, in the same way as in a machine, and without the mind being able to hinder it. Now since we observe this in ourselves, why should we be so much astonished if the light reflected from the body of a wolf into the eye of a sheep has the same force to excite in it the motion of flight?

"After having observed this, if we wish to learn by reasoning, whether certain movements of beasts are comparable to those which are effected in us by the operation of the mind, or, on the contrary, to those which depend only on the animal spirits and the disposition of the organs, it is necessary to consider the difference between the two, which I have explained in the fifth part of the *Discourse on Method* (for I do not think that any others are discoverable), and then it will easily be seen, that all the actions of beasts are similar only to those which we perform without the help of our minds. For which reason we shall be forced to conclude, that we know of the existence in them of no other principle of motion than the disposition of their organs and the continual affluence of animal spirits produced by the heat of the heart, which attenuates and subtilises the blood; and, at the same time, we shall acknowledge that we have had no reason for assuming any other principle, except that, not having distinguished these two principles of motion, and seeing that the one, which depends only on the animal spirits and the organs, exists in

beasts as well as in us, we have hastily concluded that the other, which depends on mind and on thought, was also possessed by them."

Descartes' line of argument is perfectly clear. He starts from reflex action in man, from the unquestionable fact that, in ourselves, co-ordinate, purposive, actions may take place, without the intervention of consciousness or volition, or even contrary to the latter. As actions of a certain degree of complexity are brought about by mere mechanism, why may not actions of still greater complexity be the result of a more refined mechanism? What proof is there that brutes are other than a superior race of marionettes, which eat without pleasure, cry without pain, desire nothing, know nothing, and only simulate intelligence as a bee simulates a mathematician?

The Port Royalists adopted the hypothesis that brutes are machines, and are said to have carried its practical applications so far, as to treat domestic animals with neglect, if not with actual cruelty. As late as the middle of the eighteenth century, the problem was discussed very fully and ably by Bouillier, in his "*Essai philosophique sur l'Ame des Bêtes*," while Condillac deals with it in his "*Traité des Animaux*"; but since then it has received little attention. Nevertheless, modern research has brought to light a great multitude of facts, which not only show that Descartes' view is defensible, but render it far more defensible than it was in his day.

It must be premised, that it is wholly impossible absolutely to prove the presence or absence of consciousness in anything but one's own brain, though, by analogy, we are justified in assuming its existence in other men. Now if, by some accident, a man's spinal cord is divided, his limbs are paralyzed, so far as his volition is concerned, below the point of injury; and he is incapable of experiencing all those states of consciousness, which, in his uninjured state, would be excited by irritation of those nerves which come off below the injury. If the spinal cord is divided in the middle of the back, for example, the skin of the feet may be cut, or pinched, or burned, or wetted with vitriol, without any sensation of touch, or of pain, arising in consciousness. So far as the man is concerned, therefore, the part of the central nervous system which

lies beyond the injury is cut off from consciousness. It must indeed be admitted, that, if anyone think fit to maintain that the spinal cord below the injury is conscious, but that it is cut off from any means of making its consciousness known to the other consciousness in the brain, there is no means of driving him from his position by logic. But assuredly there is no way of proving it, and in the matter of consciousness, if in anything, we may hold by the rule, " *De non apparentibus et de non existentibus eadem est ratio.*" However near the brain the spinal cord is injured, consciousness remains intact, except that the irritation of parts below the injury is no longer represented by sensation. On the other hand, pressure upon the anterior division of the brain, or extensive injuries to it, abolish consciousness. Hence, it is a highly probable conclusion, that consciousness in man depends upon the integrity of the anterior division of the brain, while the middle and hinder divisions of the brain, and the rest of the nervous centres, have nothing to do with it. And it is further highly probable, that what is true for man is true for other vertebrated animals.

We may assume, then, that in a living vertebrated animal, any segment of the cerebro-spinal axis (or spinal cord and brain) separated from that anterior division of the brain which is the organ of consciousness, is as completely incapable of giving rise to consciousness, as we know it to be incapable of carrying out volitions. Nevertheless, this separated segment of the spinal cord is not passive and inert. On the contrary, it is the seat of extremely remarkable powers. In our imaginary case of injury, the man would, as we have seen, be devoid of sensation in his legs, and would have not the least power of moving them. But, if the soles of his feet were tickled, the legs would be drawn up, just as vigorously as they would have been before the injury. We know exactly what happens when the soles of the feet are tickled; a molecular change takes place in the sensory nerves of the skin, and is propagated along them and through the posterior roots of the spinal nerves, which are constituted by them, to the grey matter of the spinal cord. By means of that grey matter, the molecular motion is reflected into the anterior roots of the same nerves, constituted by the

filaments which supply the muscles of the legs, and, travelling along these motor filaments, reaches the muscles, which at once contract, and cause the limbs to be drawn up.

In order to move the legs in this way, a definite co-ordination of muscular contractions is necessary; the muscles must contract in a certain order and with duly proportioned force; and moreover, as the feet are drawn away from the source of irritation, it may be said that the action has a final cause, or is purposive.

Thus it follows, that the grey matter of the segment of the man's spinal cord, though it is devoid of consciousness, nevertheless responds to a simple stimulus by giving rise to a complex set of muscular contractions, co-ordinated towards a definite end, and serving an obvious purpose.

If the spinal cord of a frog is cut across, so as to provide us with a segment separated from the brain, we shall have a subject parallel to the injured man, on which experiments can be made without remorse; as we have a right to conclude that a frog's spinal cord is not likely to be conscious, when a man's is not.

Now the frog behaves just as the man did. The legs are utterly paralyzed, so far as voluntary movement is concerned; but they are vigorously drawn up to the body, when any irritant is applied to the foot. But let us study our frog a little further. Touch the skin of the side of the body with a little acetic acid, which gives rise to all the signs of great pain in an uninjured frog. In this case there can be no pain, because the application is made to a part of the skin supplied with nerves which come off from the cord below the point of section; nevertheless, the frog lifts up the limb of the same side, and applies the foot to rub off the acetic acid; and, what is still more remarkable, if the limb be held so that the frog cannot use it, it will, by-and-by, move the limb of the other side, turn it across the body, and use it for the same rubbing process. It is impossible that the frog, if it were in its entirety and could reason, should perform actions more purposive than these; and yet we have most complete assurance that, in this case, the frog is not acting from purpose, has no consciousness, and is a mere automatic machine.

But now suppose that, instead of mak-

ing a section of the cord in the middle of the body, it had been made in such a manner as to separate the hindmost division of the brain from the rest of the organ, and suppose the foremost two-thirds of the brain entirely taken away. The frog is then absolutely devoid of any spontaneity; it sits upright in the attitude which a frog habitually assumes; and it will not stir unless it is touched; but it differs from the frog which I have just described in this, that if it be thrown into the water, it begins to swim, and swims just as well as the perfect frog does. But swimming requires the combination and successive co-ordination of a great number of muscular actions. And we are forced to conclude, that the impression made upon the sensory nerves of the skin of the frog by the contact with the water into which it is thrown, causes the transmission to the central nervous apparatus of an impulse, which sets going a certain machinery by which all the muscles of swimming are brought into play in due co-ordination. If the frog be stimulated by some irritating body, it jumps or walks as well as the complete frog can do. The simple sensory impression, acting through the machinery of the cord, gives rise to these complex combined movements.

It is possible to go a step further. Suppose that only the anterior division of the brain—so much of it as lies in front of the “optic lobes”—is removed. If that operation is performed quickly and skilfully, the frog may be kept in a state of full bodily vigor for months, or it may be for years; but it will sit unmoved. It sees nothing; it hears nothing. It will starve sooner than feed itself, although food put into its mouth is swallowed. On irritation, it jumps or walks; if thrown into the water it swims. If it be put on the hand, it sits there, crouched, perfectly quiet, and would sit there for ever. If the hand be inclined very gently and slowly, so that the frog would naturally tend to slip off, the creature's fore paws are shifted on to the edge of the hand, until he can just prevent himself from falling. If the turning of the hand be slowly continued, he mounts up with great care and deliberation, putting first one leg forward and then another, until he balances himself with perfect precision upon the edge; and, if the turning of the hand is continued, over he goes through the opposite set of ope-

rations, until he comes to be seated in security, upon the back of the hand. The doing of all this requires a delicacy of co-ordination, and precision of adjustment of the muscular apparatus of the body, which is only comparable to that of a rope-dancer. To the ordinary influences of light, the frog, deprived of its central hemispheres, appears to be blind. Nevertheless, if the creature be put upon a table with a book at some little distance between it and the light, and the skin of the hinder part of its body is then irritated, it will jump forward, avoiding the book by passing to the right or left of it. Although the frog, therefore, appears to have no sensation of light, visible objects act through its brain upon the motor mechanism of its body.*

It is obvious, that had Descartes been acquainted with these remarkable results of modern research, they would have furnished him with far more powerful arguments than he possessed in favor of his view of the automatism of brutes. The habits of a frog, leading its natural life, involve such simple adaptations to surrounding conditions, that the machinery which is competent to do so much, automatically, might well do all. And this argument is vastly strengthened by what has been learned in recent times of the marvellously complex operations which are performed mechanically, and to all appearance without consciousness, by men, when, in consequence of injury or disease, they are reduced to a condition more or less comparable to that of a frog, in which the anterior part of the brain has been removed. A case has recently been published by an eminent French physician, Dr. Mesnet, which illustrates this condition so remarkably, that I make no apology for dwelling upon it at considerable length.†

A sergeant of the French army, F—, twenty-seven years of age, was wounded

* See the remarkable essay of Göltz, “Beiträge zur Lehre von den Functionen der Nervencentren des Frosches,” published in 1869. I have repeated Göltz's experiments, and obtained the same results.

† “De l'Automatisme de la Mémoire et du Souvenir, dans le Somnambulisme pathologique.” Par le Dr. E. Mesnet, Médecin de l'Hôpital Saint-Antoine. *L'Union Médicale*, Juillet 21 et 23, 1874. My attention was first called to a summary of this remarkable case, which appeared in the *Journal des Débats* for the 7th of August, 1874, by my friend General Strachey, F.R.S.

during the battle of Bazeilles, by a ball which fractured his left parietal bone. He ran his bayonet through the Prussian soldier who wounded him, but almost immediately his right arm became paralyzed; after walking about two hundred yards, his right leg became similarly affected, and he lost his senses. When he recovered them, three weeks afterwards, in hospital at Mayence, the right half of the body was completely paralyzed, and remained in this condition for a year. At present, the only trace of the paralysis which remains is a slight weakness of the right half of the body. Three or four months after the wound was inflicted, periodical disturbances of the functions of the brain made their appearance, and have continued ever since. The disturbances last from fifteen to thirty hours; the intervals at which they occur being from fifteen to thirty days.

For four years, therefore, the life of this man has been divided into alternating phases—short abnormal states intervening between long normal states.

In the periods of normal life, the ex-sergeant's health is perfect; he is intelligent and kindly, and performs, satisfactorily, the duties of a hospital attendant. The commencement of the abnormal state is ushered in by uneasiness and a sense of weight about the forehead, which the patient compares to the constriction of a circle of iron; and, after its termination, he complains, for some hours, of dulness and heaviness of the head. But the transition from the normal to the abnormal state takes place in a few minutes, without convulsions or cries, and without anything to indicate the change to a bystander. His movements remain free and his expression calm, except for a contraction of the brow, an incessant movement of the eyeballs, and a chewing motion of the jaws. The eyes are wide open, and their pupils dilated. If the man happens to be in a place to which he is accustomed, he walks about as usual; but if he is in a new place, or if obstacles are intentionally placed in his way, he stumbles gently against them, stops, and then, feeling over the objects with his hands, passes on one side of them. He offers no resistance to any change of direction which may be impressed upon him, or to the forcible acceleration, or retardation, of his movements. He eats, drinks, smokes, walks about,

dresses, and undresses himself, rises and goes to bed at the accustomed hours. Nevertheless, pins may be run into his body, or strong electric shocks sent through it, without causing the least indication of pain; no odorous substance, pleasant or unpleasant, makes the least impression; he eats and drinks with avidity whatever is offered, and takes asafoetida, or vinegar, or quinine, as readily as water; no noise affects him; and light influences him only under certain conditions. Dr. Mesnet remarks, that the sense of touch alone seems to persist, and indeed to be more acute and delicate than in the normal state; and it is by means of the nerves of touch, almost exclusively, that his organism is brought into relation with the external world. Here a difficulty arises. It is clear from the facts detailed, that the nervous apparatus by which, in the normal state, sensations of touch are excited, is that by which external influences determine the movements of the body, in the abnormal state. But does the state of consciousness, which we term a tactile sensation, accompany the operation of this nervous apparatus in the abnormal state? or is consciousness utterly absent, the man being reduced to a pure mechanism?

It is impossible to obtain direct evidence in favor of the one conclusion or the other; all that can be said is, that the case of the frog shows that the man may be devoid of any kind of consciousness. A further difficult problem is this. The man is insensible to sensory impressions made through the ear, the nose, the tongue, and, to a great extent, the eye; nor is he susceptible of pain from causes operating during his abnormal state. Nevertheless, it is possible so to act upon his tactile apparatus, as to give rise to those molecular changes in his sensorium, which are ordinarily the causes of associated trains of ideas. I give a striking example of this process in Dr. Mesnet's words:—

"Il se promenait dans le jardin, sous un massif d'arbres, on lui remet à la main sa canne qu'il avait laissé tomber quelques minutes avant. Il la palpe, promène à plusieurs reprises la main sur la poignée coulée de sa canne—devient attentif—semble prêter l'oreille—et, tout-à-coup, appelle "Henri!" Puis, "Les voilà! Ils sont au moins une vingtaine! à nous deux, nous en viendrons à bout!" Et alors portant la main derrière son dos comme pour prendre une cartouche, il fait le mouve-

ment de charger son arme, se couche dans l'herbe à plat ventre, la tête cachée par un arbre, dans la position d'un tirailleur, et suit, l'arme épaulée, tous les mouvements de l'ennemi qu'il croit voir à courte distance."

In a subsequent abnormal period, Dr. Mesnet caused the patient to repeat this scene by placing him in the same conditions. Now, in this case, the question arises whether the series of actions constituting this singular pantomime was accompanied by the ordinary states of consciousness, the appropriate train of ideas, or not? Did the man dream that he was skirmishing? or was he in the condition of one of Vaucauson's automata—a mechanism worked by molecular changes in his nervous system? The analogy of the frog shows that the latter assumption is perfectly justifiable.

The ex-sergeant has a good voice, and had, at one time, been employed as a singer at a café. In one of his abnormal states he was observed to begin humming a tune. He then went to his room, dressed himself carefully, and took up some parts of a periodical novel, which lay on his bed, as if he were trying to find something. Dr. Mesnet, suspecting that he was seeking his music, made up one of these into a roll and put it into his hand. He appeared satisfied, took up his cane and went down-stairs to the door. Here Dr. Mesnet turned him round, and he walked quite contentedly, in the opposite direction, towards the room of the concierge. The light of the sun shining through a window now happened to fall upon him, and seemed to suggest the footlights of the stage on which he was accustomed to make his appearance. He stopped, opened his roll of imaginary music, put himself into the attitude of a singer, and sang, with perfect execution, three songs, one after the other. After which he wiped his face with his handkerchief and drank, without a grimace, a tumbler of strong vinegar and water which was put into his hand.

An experiment which may be performed upon the frog deprived of the forepart of its brain, well known as Göltz's "Quakerschuh," affords a parallel to this performance. If the skin of a certain part of the back of such a frog, is gently stroked with the finger it immediately croaks. It never croaks unless it is so stroked, and the croak always follows the stroke, just as the sound of a repeater follows the

touching of the spring. In the frog, this "song" is innate—so to speak *à priori*—and depends upon a mechanism in the brain governing the vocal apparatus, which is set at work by the molecular change set up in the sensory nerves of the skin of the back by the contact of a foreign body.

In man there is also a vocal mechanism, and the cry of an infant is in the same sense innate and *à priori*, inasmuch as it depends on an organic relation between its sensory nerves and the nervous mechanism which governs the vocal apparatus. Learning to speak and learning to sing, are processes by which the vocal mechanism is set to new tunes. A song which has been learned has its molecular representative, which potentially represents it in the brain, just as a musical box wound up potentially represents overtures. Touch the stop and the overture begins; send a molecular impulse along the proper afferent nerve and the singer begins his song.

Again, the manner in which the frog, though apparently insensible to light, is yet, under some circumstances, influenced by visual images, finds a singular parallel in the case of the ex-sergeant.

Sitting at a table, in one of his abnormal states, he took up a pen, felt for paper and ink, and began to write a letter to his general, in which he recommended himself for a medal, on account of his good conduct and courage. It occurred to Dr. Mesnet to ascertain experimentally how far vision was concerned in this act of writing. He therefore interposed a screen between the man's eyes and his hands; under these circumstances he went on writing for a short time, but the words became illegible, and he finally stopped, without manifesting any discontent. On the withdrawal of the screen he began to write again where he had left off. The substitution of water for ink in the inkstand had a similar result. He stopped, looked at his pen, wiped it on his coat, dipped it in the water, and began again, with the same effect.

On one occasion, he began to write upon the topmost of ten superimposed sheets of paper. After he had written a line or two, this sheet was suddenly drawn away. There was a slight expression of surprise, but he continued his letter on the second sheet exactly as if it had been the first. This operation was repeated five times, so that the fifth sheet con-

tained nothing but the writer's signature at the bottom of the page. Nevertheless, when the signature was finished, his eyes turned to the top of the blank sheet, and he went through the form of reading over what he had written, a movement of the lips accompanying each word; moreover, with his pen, he put in such corrections as were needed, in that part of the blank page which corresponded with the position of the words which required correction, in the sheets which had been taken away. If the five sheets had been transparent, therefore, they would, when superposed, have formed a properly written and corrected letter.

Immediately after he had written his letter, F— got up, walked down to the garden, made himself a cigarette, lighted and smoked it. He was about to prepare another, but sought in vain for his tobacco pouch, which had been purposely taken away. The pouch was now thrust before his eyes and put under his nose, but he neither saw nor smelt it; but when it was placed in his hand, he at once seized it, made a fresh cigarette, and ignited a match to light the latter. The match was blown out, and another lighted match placed close before his eyes, but he made no attempt to take it; and if his cigarette was lighted for him, he made no attempt to smoke. All this time the eyes were vacant, and neither winked, nor exhibited any contraction of the pupils. From these and other experiments Dr. Mesnet draws the conclusion that his patient sees some things and not others; that the sense of sight is accessible to all things which are brought into relation with him by the sense of touch, and, on the contrary, insensible to things which lie outside this relation. He sees the match he holds, and does not see any other.

Just so the frog "sees" the book which is in the way of his jump, at the same time that isolated visual impressions take no effect upon him.*

* Those who have had occasion to become acquainted with the phenomena of somnambulism and of mesmerism, will be struck with the close parallel which they present to the proceedings of F. in his abnormal state. But the great value of Dr. Mesnet's observations lies in the fact that the abnormal condition is traceable to a definite injury to the brain, and that the circumstances are such as to keep us clear of the cloud of voluntary and involuntary fictions in which the truth is too often smoothed.

As I have pointed out, it is impossible to prove that F— is absolutely unconscious in his abnormal state, but it is no less impossible to prove the contrary; and the case of the frog goes a long way to justify the assumption that, in the abnormal state, the man is a mere machine.

If such facts as these had come under the knowledge of Descartes, would they not have formed an apt commentary upon that remarkable passage in the "Traité de l'Homme," which I have quoted elsewhere,* but which is worth repetition?—

"All the functions which I have attributed to this machine (the body), as the digestion of food, the pulsation of the heart and of the arteries; the nutrition and the growth of the limbs; respiration, wakefulness, and sleep; the reception of light, sounds, odors, flavors, heat, and such like qualities, in the organs of the external senses; the impression of the ideas of these in the organ of common sensation and in the imagination; the retention or the impression of these ideas on the memory; the internal movements of the appetites and the passions; and lastly the external movements of all the limbs, which follow so aptly, as well the action of the objects which are presented to the senses, as the impressions which meet in the memory, that they imitate as nearly as possible those of a real man; I desire, I

ered in such cases. In the unfortunate subjects of such abnormal conditions of the brain, the disturbance of the sensory and intellectual faculties is not unfrequently accompanied by a perturbation of the moral nature, which may manifest itself in a most astonishing love of lying for its own sake. And, in this respect, also, F.'s case is singularly instructive, for though, in his normal state, he is a perfectly honest man, in his abnormal condition he is an inveterate thief, stealing and hiding away whatever he can lay hands on, with much dexterity, and with an absurd indifference as to whether the property is his own or not. Hofmann's terrible conception of the "Doppelgänger" is realised by men in this state—who live two lives, in the one of which they may be guilty of the most criminal acts while, in the other, they are eminently virtuous and respectable. Neither life knows any thing of the other. Dr. Mesnet states that he has watched a man in his abnormal state elaborately prepare to hang himself, and has let him go on until asphyxia set in, when he cut him down. But on passing into the normal state the would-be suicide was wholly ignorant of what had happened. The problem of responsibility is here as complicated as that of the prince-bishop, who swore as a prince and not as a bishop. "But, highness, if the prince is damned, what will become of the bishop?" said the peasant.

* "Lay Sermons, Essays and Reviews," p. 355.

say, that you should consider that these functions in the machine naturally proceed from the mere arrangement of its organs, neither more nor less than do the movements of a clock, or other automaton, from that of its weights and its wheels: so that, so far as these are concerned, it is not necessary to conceive any other vegetative or sensitive soul, nor any other principle of motion or of life, than the blood and the spirits agitated by the fire which burns continually in the heart, and which is no wise essentially different from all the fires which exist in inanimate bodies."

And would Descartes not have been justified in asking why we need deny that animals are machines, when men in a state of unconsciousness perform, mechanically, actions as complicated and as rational-seeming as those of any animals?

But though I do not think that Descartes' hypothesis can be positively refuted, I am not disposed to accept it. The doctrine of continuity is too well established for it to be permissible to me to suppose that any complex natural phenomenon comes into existence suddenly, and without being preceded by simpler modifications; and very strong arguments would be needed to prove that such complex phenomena as those of consciousness first make their appearance in man. We know, that, in the individual man, consciousness grows from a dim glimmer to its full light, whether we consider the infant advancing in years, or the adult emerging from slumber and swoon. We know, further, that the lower animals possess, though less developed, that part of the brain which we have every reason to believe to be the organ of consciousness in man; and as, in other cases, function and organ are proportional, so we have a right to conclude it is with the brain; and that the brutes, though they may not possess our intensity of consciousness, and though, from the absence of language, they can have no trains of thoughts, but only trains of feelings, yet have a consciousness which, more or less distinctly, foreshadows our own.

I confess, that, in view of the struggle for existence which goes on in the animal world, and of the frightful quantity of pain with which it must be accompanied, I should be glad if the probabilities were in favor of Descartes' hypothesis; but, on the other hand, considering the terrible practical consequences to domestic animals which might ensue from any error on our part, it is as well to err on the right side,

if we err at all, and deal with them as weaker brethren, who are bound, like the rest of us, to pay their toll for living, and suffer what is needful for the general good. As Hartley finely says, "We seem to be in the place of God to them;" and we may justly follow the precedents He sets in nature in our dealings with them.

But though we may see reason to disagree with Descartes' hypothesis that brutes are unconscious machines, it does not follow that he was wrong in regarding them as automata. They may be more or less conscious, sensitive, automata; and the view that they are such conscious machines is that which is implicitly, or explicitly, adopted by most persons. When we speak of the actions of the lower animals being guided by instinct and not by reason, what we really mean is that though they feel as we do, yet their actions are the results of their physical organization. We believe, in short, that they are machines one part of which (the nervous system) not only sets the rest in motion, and coordinates its movements in relation with changes in surrounding bodies, but is provided with special apparatus, the function of which is the calling into existence of those states of consciousness which are termed sensations, emotions, and ideas. I believe that this generally accepted view is the best expression of the facts at present known.

It is experimentally demonstrable—any one who cares to run a pin into himself may perform a sufficient demonstration of the fact—that a mode of motion of the nervous system is the immediate antecedent of a state of consciousness. All but the adherents of "Occasionalism," or of the doctrine of "Pre-established Harmony" (if any such now exist), must admit that we have as much reason for regarding the mode of motion of the nervous system as the cause of the state of consciousness, as we have for regarding any event as the cause of another. How the one phenomenon causes the other we know, as much or as little, as in any other case of causation; but we have as much right to believe that the sensation is an effect of the molecular change as we have to believe that motion is an effect of impact; and there is as much propriety in saying that the brain evolves sensation, as there is in saying that an iron rod, when hammered, evolves heat.

As I have endeavored to show, we are justified in supposing that something analogous to what happens in ourselves takes place in the brutes, and that the affections of their sensory nerves give rise to molecular changes in the brain, which again give rise to, or evolve, the corresponding states of consciousness. Nor can there be any reasonable doubt that the emotions of brutes, and such ideas as they possess, are similarly dependent upon molecular brain changes. Each sensory impression leaves behind a record in the structure of the brain—an "ideagenous" molecule, so to speak, which is competent, under certain conditions, to reproduce, in a fainter condition, the state of consciousness which corresponds with that sensory impression; and it is these "ideagenous molecules" which are the physical basis of memory.

It may be assumed, then, that molecular changes in the brain are the causes of all the states of consciousness of brutes. Is there any evidence that these states of consciousness may, conversely, cause these molecular changes which give rise to muscular motion? I see no such evidence. The frog walks, hops, swims, and goes through his gymnastic performances quite as well without consciousness, and consequently without volition, as with it; and if a frog, in his natural state, possesses anything corresponding with what we call volition, there is no reason to think that it is anything but a concomitant of the molecular changes in the brain which form part of the series involved in the production of motion.

The consciousness of brutes would appear to be related to the mechanism of their body simply as a collateral product of its working, and to be as completely without any power of modifying that working, as the steam-whistle which accompanies the work of a locomotive engine is without influence upon its machinery. Their volition, if they have any, is an emotion indicative of physical changes, not a cause of such changes.

This conception of the relations of states of consciousness with molecular changes in the brain—of *psychoses* with *neuroses*—does not prevent us from ascribing free will to brutes. For an agent is free when there is nothing to prevent him from doing that which he desires to do. And if a greyhound chases a hare, he is a free agent, because his action is in en-

tire accordance with his strong desire to catch the hare; while so long as he is held back by the leash he is not free, being prevented by external force from following his inclination. And the ascription of freedom to the greyhound under the former circumstances is by no means inconsistent with the other aspect of the facts of the case—that he is a machine impelled to the chase, and caused, at the same time, to have the desire to catch the game by the impression which the rays of light proceeding from the hare make upon his eyes, and through them upon his brain.

Much ingenious argument has, at various times, been bestowed upon the question: How is it possible to imagine that volition, which is a state of consciousness, and, as such, has not the slightest community of nature with matter in motion, can act upon the moving matter of which the body is composed, as it is assumed to do in voluntary acts? But if, as is here suggested, the voluntary acts of brutes—or, in other words, the acts which they desire to perform—are as purely mechanical as the rest of their actions, and are simply accompanied by the state of consciousness called volition, the inquiry, so far as they are concerned, becomes superfluous. Their volitions do not enter into the chain of causation of their actions at all.

The hypothesis that brutes are conscious automata is perfectly consistent with any view that may be held respecting the often discussed and curious question whether they have souls or not; and, if they have souls, whether those souls are immortal or not. It is obviously harmonious with the most literal adherence to the text of Scripture concerning "the beast that perisheth;" but it is not inconsistent with the amiable conviction ascribed by Pope to his "untutored savage," that when he passes to the happy hunting-ground in the sky, "his faithful dog shall bear him company." If the brutes have consciousness and no souls, then it is clear that, in them, consciousness is a direct function of material changes; while, if they possess immaterial subjects of consciousness, or souls, then, as consciousness is brought into existence only as the consequence of molecular motion of the brain, it follows that it is an indirect product of material changes. The soul stands related to the body as the bell of a clock to the works, and con-

sciousness answers to the sound which the bell gives out when it is struck.

Thus far I have strictly confined myself to the problem with which I proposed to deal at starting—the automatism of brutes. The question is, I believe, a perfectly open one, and I feel happy in running no risk of either Papal or Presbyterian condemnation for the views which I have ventured to put forward. And there are so very few interesting questions which one is, at present, allowed to think out scientifically—to go as far as reason leads, and stop where evidence comes to an end—without speedily being deafened by the tattoo of “the drum ecclesiastic”—that I have luxuriated in my rare freedom, and would now willingly bring this disquisition to an end if I could hope that other people would go no further. Unfortunately, past experience debars me from entertaining any such hope, even if

“ . . . that drum’s discordant sound
Parading round and round and round.”

were not, at present, as audible to me, as it was to the mild poet who ventured to express his hatred of drums in general, in that well-known couplet.

It will be said, that I mean that the conclusions deduced from the study of the brutes are applicable to man, and that the logical consequences of such application are fatalism, materialism, and atheism—whereupon the drums will beat the *pas de charge*.

One dopes not do battle with drummers; but I venture to offer a few remarks for the calm consideration of thoughtful persons, untrammelled by foregone conclusions, unpledged to shore-up tottering dogmas, and anxious only to know the true bearings of the case.

It is quite true that, to the best of my judgment, the argumentation which applies to brutes holds equally good of men; and, therefore, that all states of consciousness in us, as in them, are immediately caused by molecular changes of the brain-substance. It seems to me that in men, as in brutes, there is no proof that any state of consciousness is the cause of change in the motion of the matter of the organism. If these positions are well based, it follows that our mental conditions are simply the symbols in consciousness of the changes which take place automatically in the organism; and that, to take an

extreme illustration, the feeling we call volition is not the cause of a voluntary act, but the symbol of that state of the brain which is the immediate cause of that act. We are conscious automata, endowed with free will in the only intelligible sense of that much-abused term—inasmuch as in many respects we are able to do as we like—but none the less parts of the great series of causes and effects which, in unbroken continuity, composes that which is, and has been, and shall be—the sum of existence.

As to the logical consequences of this conviction of mine, I may be permitted to remark that logical consequences are the scarecrows of fools and the beacons of wise men. The only question which any wise man can ask himself, and which any honest man will ask himself, is whether a doctrine is true or false. Consequences will take care of themselves; at most their importance can only justify us in testing with extra care the reasoning process from which they result.

So that if the view I have taken did really and logically lead to fatalism, materialism, and atheism, I should profess myself a fatalist, materialist, and atheist; and I should look upon those who, while they believed in my honesty of purpose and intellectual competency, should raise a hue and cry against me, as people who by their own admission preferred lying to truth, and whose opinions therefore were unworthy of the smallest attention.

But, as I have endeavored to explain on other occasions, I really have no claim to rank myself among fatalistic, materialistic, or atheistic philosophers. Not among fatalists, for I take the conception of necessity to have a logical, and not a physical foundation; not among materialists, for I am utterly incapable of conceiving the existence of matter if there is no mind in which to picture that existence; not among atheists, for the problem of the ultimate cause of existence is one which seems to me to be hopelessly out of reach of my poor powers. Of all the senseless babble I have ever had occasion to read, the demonstrations of those philosophers who undertake to tell us all about the nature of God would be the worst, if they were not surpassed by the still greater absurdities of the philosophers who try to prove that there is no God.

And if this personal disclaimer should

not be enough, let me further point out that a great many persons whose acuteness and learning will not be contested, and whose Christian piety, and, in some cases, strict orthodoxy, is above suspicion, have held more or less definitely the view that man is a conscious automaton.

It is held, for example, in substance, by the whole school of predestinarian theologians, typified by St. Augustine, Calvin, and Jonathan Edwards—the great work of the latter on the will showing in this, as in other cases, that the growth of physical science has introduced no new difficulties of principle into theological problems, but has merely given visible body, as it were, to those which already existed.

Among philosophers, the pious Geulincx and the whole school of occasionalist Cartesians held this view; the orthodox Leibnitz invented the term "automate spirituel," and applied it to man; the fervent Christian, Hartley, was one of the chief advocates and best expositors of the doctrine; while another zealous apologist of Christianity in a sceptical age, and a contemporary of Hartley, Charles Bonnet, the Genevese naturalist, has embodied the doctrine in language of such precision and simplicity, that I will quote the little-known passage of his "*Essai de Psychologie*" at length:—

"ANOTHER HYPOTHESIS CONCERNING THE MECHANISM OF IDEAS.*

"Philosophers accustomed to judge of things by that which they are in themselves, and not by their relation to received ideas, would not be shocked if they met with the proposition that the soul is a mere spectator of the movements of its body: that the latter performs of itself all that series of actions which constitutes life: that it moves of itself: that it is the body alone which reproduces ideas, compares and arranges them; which forms reasonings, imagines and executes plans of all kinds, &c. This hypothesis, though perhaps of an excessive boldness, nevertheless deserves some consideration.

It is not to be denied that Supreme Power could create an automaton which should exactly imitate all the external and internal actions of man.

I understand by external actions, all those movements which pass under our eyes; I term internal actions, all the motions which in the natural state cannot be observed because they take place in the interior of the body—such as the movements of digestion, circulation, sensation, etc. Moreover, I include in

this category the movements which give rise to ideas, whatever be their nature.

In the automaton which we are considering everything would be precisely determined. Everything would occur according to the rules of the most admirable mechanism: one state would succeed another state, one operation would lead to another operation, according to invariable laws; motion would become alternately cause and effect, effect and cause; reaction would answer to action, and reproduction to production.

Constructed with definite relations to the activity of the beings which compose the world, the automaton would receive impressions from it, and, in faithful correspondence thereto, it would execute a corresponding series of motions.

Indifferent towards any determination, it would yield equally to all, if the first impressions did not, so to speak, wind up the machine and decide its operations and its course.

The series of movements which this automaton could execute would distinguish it from all others formed on the same model, but which, not having been placed in similar circumstances would not have experienced the same impressions, or would not have experienced them in the same order.

The senses of the automaton, set in motion by the objects presented to it, would communicate their motion to the brain, the chief motor apparatus of the machine. This would put in action the muscles of the hands and feet, in virtue of their secret connection with the senses. These muscles, alternately contracted and dilated, would approximate or remove the automaton from the objects, in the relation which they would bear to the conservation or the destruction of the machine.

The motions of perception and sensation which the objects would have impressed on the brain, would be preserved in it by the energy of its mechanism. They would become more vivid according to the actual condition of the automaton, considered in itself and relatively to the objects.

Words being only the motions impressed on the organ of hearing and that of voice, the diversity of these movements, their combination, the order in which they would succeed one another, would represent judgments, reasonings, and all the operations of the mind.

A close correspondence between the organs of the senses, either by the opening into one another of their nervous ramifications, or by interposed springs (*ressorts*), would establish such a connection in their working, that, on the occasion of the movements impressed on one of these organs, other movements would be excited, or would become more vivid in some of the other senses.

Give the automaton a soul which contemplates its movements, which believes itself to be the author of them, which has different volitions on the occasion of the different movements, and you will on this hypothesis construct a man.

But would this man be free? Can the feeling of our liberty, this feeling which is so clear and so distinct and so vivid as to persuade us

* "*Essai de Psychologie*," chap. xxvii.]

that we are the authors of our actions, be conciliated with this hypothesis? If it removes the difficulty which attends the conception of the action of the soul on the body, on the other hand it leaves untouched that which meets us in endeavoring to conceive the action of the body on the soul."

But if Leibnitz, Jonathan Edwards, and Hartley—men who rank among the giants of the world of thought—could see no antagonism between the doctrine under discussion and Christian orthodoxy, is it not just possible that smaller folk may be wrong in making such a coil about "logical consequences"? And, seeing how large a share of this clamor is raised by the clergy of one denomination or another, may I say, in conclusion, that it really would be well if ecclesiastical persons would reflect that ordination, whatever deep-seated graces it may confer, has never been observed to be followed by any visible increase in the learning or the logic of its subject? Making a man a Bishop, or entrusting him with the office of ministering to even the largest of Presbyterian congregations, or setting him up to lecture to a Church congress, really does not in the smallest degree augment such title to

respect as his opinions may intrinsically possess. And when such a man presumes on an authority which was conferred upon him for other purposes, to sit in judgment upon matters his incompetence to deal with which is patent, it is permissible to ignore his sacerdotal pretensions, and to tell him, as one would tell a mere common, unconsecrated layman: that it is not necessary for any man to occupy himself with problems of this kind unless he so choose. Life is filled full enough by the performance of its ordinary and obvious duties. But that, if a man elect to become a judge of these grave questions; still more, if he assume the responsibility of attaching praise or blame to his fellow-men for the conclusions at which they arrive touching them, he will commit a sin more grievous than most breaches of the Decalogue, unless he avoid a lazy reliance upon the information that is gathered by prejudice and filtered through passion, unless he go back to the prime sources of knowledge—the facts of nature, and the thoughts of those wise men who for generations past have been her best interpreters.—*Fortnightly Review.*

FEUDAL CHINA.

THAT China is stereotyped, is what Mr. Matthew Arnold would call a "stock phrase;" and, as our laureate has embalmed it in his melodious verse, we fear the stock phrase itself is securely stereotyped in English literature. "Better fifty years of Europe than a cycle of Cathay," does not indeed assert any incomparable superiority for our western conditions of life, when we happen to be familiar with the Chinese cycle of plain prose, a definite period of just half a century plus ten years. The poet, however, could not be expected to know that the dwellers in far Cathay were civilised enough to employ an astronomical cycle of sixty years as an ordinary method of dating their letters and documents. No doubt he meant to laud the constant progress of our western world, spinning along grooves of change with an ever-widening purpose, by contrasting with it the proverbial stagnation of a phlegmatic race, which, if it moves at all, moves in a narrow circle, aptly typified by their own heavy buffaloes slow-

ly trampling round their sugar-mills in their old hoof-marks. But is it the fact that the inventive capacity of the Chinese is so dull, and its admiration of the past so profound, that for three or four thousand years they have done nothing but hash up the broken fragments of primeval ideas, and reproduce the forms of their earliest national life? This much of justification we must allow for the stereotyped notion that the rate of progress in China has not been so rapid as in Europe, and that its development has been more continuous, never breaking away so completely from the old, nor entering upon such entire novelty of conditions as we are familiar with in European history. The Europe of Agamemnon, the Europe of Augustus, and the Europe of Bismarck present to our view such immense differences, both of superficial aspect and deep down in the roots of national and individual life, that it is difficult to realise that three such distinct eras are actually merely different stages of development of the

same common humanity. To us the times of the Tudors appear distant antiquity; the dark ages are the chaotic birth-era of our modern nationalities. As for all anterior history, it hardly seems to belong to the same race. We cannot say the same of China. There no glacial period established a marked break between any two portions of its history. China has known her cataclysms, but none of them separates between her past and her present as the irruption of the barbarians into the Roman Empire separates modern Europe from the age of the Antonines. The same barbaric hordes which ravaged the fields of Gaul and thundered at the gates of Rome, almost at the same time overwhelmed the Chinese Empire, and founded a new dynasty in its capital. But the force of the waves of barbaric invasion which rolled over China once and again was never powerful enough to uproot the foundations of the national life; and when the floods subsided, the people continued to build on the old lines.

In comparing the rate of progress in Europe and China, we have to take into account another important distinction. Our development is the result of the interfusion of diverse types of civilisation. We inherit the intellectual wealth, the accumulated experience, of Judæa, Greece, and Rome, besides those of the more remote civilisations of Western Asia and Egypt. China has been comparatively a stranger to the intermixture of nations and of races. Her development is almost entirely of home growth; and, therefore, no wonder if the rate of progress has not been so rapid, nor its fruits so rich, as those that we have gathered from a hundred shores. Yet for all that we make such apologies for China, we are not about to plead guilty on her behalf to the charge of being stereotyped. The real ground of that charge is not her stagnation, but our ignorance. A notion has got abroad that in the far East, as it was in the beginning so it is now; that the China of Mr. Wade is almost identical with the China of Marco Polo, and that the China of Marco Polo was equally similar to that of Confucius. Such a notion implies not only ignorance but want of reflection; for, before investigation, it is quite incredible that a great nation should exist for three mil-

lenniums learning nothing, altering nothing, losing nothing. But in truth if that venerable Chinese sage could now revisit the glimpses of the moon, and wander among the scenes of his former life, he would probably feel himself as utterly bewildered by the new aspect of affairs as would Peter the Great among ourselves. We have mentally assumed that the Chinese men always wore pig-tails, that their women always squeezed up their pretty feet, and then being astonished at the amazing persistency of fashion in China, being ignorant that both these queer customs are of a date which is modern compared with the length of Chinese history. We admire or ridicule the system of making Government appointments the rewards of successful competition in literary examinations, under the impression that it has been an established practice from time immemorial, although the ancient sages and rulers of China never conceived the notion of such a proceeding, the scheme having been first introduced under the T'ang dynasty during the latter half of Chinese history. We should not accuse the Chinese of stagnation in religious thought if we were aware that within historical times new religions have sprung up at home and been introduced from abroad, and that they passed through centuries of bitter controversy and fierce persecution before their jealous rivalry calmed down to the recent latitudinarian mutual tolerance. In philosophy it is easy to imagine that they have made no advances while the great name of Choo He has hardly been heard of in the West. In poetry Li t'ac peh and So tung peh are as far removed from the Classic of Ancient Poetry as Horace and Anacreon from Ennius and Homer. We cannot assert that there is nothing new in literary criticism, when a distinguished scholar of the Han Lin College, in a work only published a few years back, is found disputing the ancient and almost sacred tradition that Confucius composed the Ch'un Ts'ew. As for political revolutions, wars, invasions, rebellions, changes of dynasties, the history of China teems with them; and the people themselves, so far from being aware of their stereotyped condition, are at the present time living in continual expectation of another turn of the political ka-

leidoscope. China will remain stereotyped to our popular imagination only so long as we preserve our profound ignorance of the vast amount of internal activity which has been at work within her borders for ages.

A concise but graphic history of China is a desideratum. The obstacle in the way is the immense amount of material extant in a language peculiarly difficult of acquisition, and out of the ordinary route of orientalists. Some thousands of volumes must be explored, sifted, and arranged before anyone could make a decent pretence at composing a general history of the Chinese empire. Sinologues are paving the way for the great undertaking; and recently a splendid contribution to the work has been made by a translation into English of the most important and interesting, historically considered, of the classical, quasi-sacred, books of ancient China. This book* gives us the text and translation of the Ch'un Ts'ew, popularly attributed to Confucius, and of the Tso Chuen, or notes and supplements from the hand of one of his followers. In this compilation we possess the beginning of contemporary history in China extending from B.C. 721 to 463; and we have adopted a suggestion of the learned translator by calling the period to which it relates the feudal age of China. One must not press the phrase too hard, as we have no distinct account of the tenure on which the great nobles held their domains; but the resemblance between the condition of China at that time parcelled out into ten or a dozen large principalities, and an unascertained number of smaller baronies, and the political state of feudal Europe in the middle ages, is quite sufficient to justify our distinguishing it as feudal China. It brings prominently forward the fact that China was not then the political unity and absolute monarchy which it afterwards became, and continued, though not without interruptions, from that day to this. Of this period of China's history the Ch'un Ts'ew covers two centuries and a half, anterior to the Peloponnesian war, and the conquest of Veii by the Romans; and of this far-away age we read here accounts

so abundant, so minute, so vivid in incident and rich in coloring, that one might almost imagine special correspondents were abroad in those days; and that our historian had compressed his narrative out of snippings from the newspapers. One may safely say, with these records before him, that we have materials in hand for a history of China probably more complete and reliable than can be constructed out of existing memorials of any other nation in the world during the same period. We do not owe this boon to Confucius. His portion, if indeed it was in any sense his, consists merely of a bare transcript of, or excerpts from, the public archives of his native state, Loo, and is no better than the naked skeleton of history. Each of the feudal states maintained its official historiographer, whose duty it was to chronicle the great events of each month of the year. A line or a line and a half sufficed, noting down the date of a coronation, a marriage, a treaty, or a battle. It was the commentator Tso who took these dry bones and clothed them with the flesh and blood of humor, thought, and action, and decked them out, like another Froissart, in all the elaborate attire and ceremonial of the time, until they pass in a life-like drama before our eyes. His chronicles too, are perfectly trustworthy. Mistakes there may be, and, for aught we know, here and there are occasional misrepresentations; but no one can peruse the whole work without feeling satisfied of its substantial accuracy and fidelity.

Under penalty of being accused of harping too long on one string, we must just recur to our opening remarks by noticing the striking dissimilarity between the China of the Ch'un Ts'ew and the China known to us through British merchants and diplomatists. For one thing, no one could turn over these pages without being inclined to exclaim, "What a fighting set those ancient Chinese were!" We have been used to regard the Chinese, only with more reason, with Napoleon's contempt for a nation of shopkeepers. In addition to a keenness for gain and shrewdness at a bargain, which might teach something to the Jew and the Yankee, we give them credit for a pedantic scholarship and a fussy formal politeness, more trouble-

* *The Chinese Classics*, vol. v., by James Legge, D.D., LL.D. Trübner & Co.

some than admirable. We are candid enough to admit they possess the virtues of domestic affection, sobriety, and plodding industry. But who would dream of encountering the heroic virtues of a military race among these bow-and-arrow warriors? Without staying now to discuss how far the popular impression of Chinese cowardice is true, and how much of it is to be attributed to their disparity of weapons and discipline in their encounters with our red-coats and blue-jackets, we may observe that the contempt we bestow upon their want of courage they themselves are inclined to bestow upon the military art and its professors. In modern China the military officer must yield the precedence to the civilian. Literature and philosophy confer a glory not to be acquired in the pursuit of arms.

In the Ch'un Ts'ew period all this is reversed. Captain Sword then held the first place, and Captain Pen had to wait a thousand years for the time when competitive examination should deliver the government of the empire into his hands. These feudal princes of Chow were almost always at war with one another, and sometimes, though more rarely, with their sovereign. Let us take at haphazard a year's record in the annals before us. It is the fifth year of Duke Hwan, B.C. 706:—"1. In the Duke's fifth year in spring, in the first month, Paou, Marquis of Ch'in, died. 2. In summer, the Marquis of Ts'e and the Earl of Ch'ing went to Ke. 3. The King sent the son of Jing Shuh to Loo with friendly inquiries. 4. There was the burial of Duke Hwan of Ch'ing. 5. We walled Chuh-Kew. 6. In autumn, an army of Ts'ae, an army of Wei, and an army of Ch'in followed the King and invaded Ch'ing. 7. There was a grand sacrifice for rain. 8. There were locusts. 9. In winter the Duke of Chow went to Ts'aou." We have happened upon a year rather below the average in military expeditions. True there was more fighting than one would infer from the text, for our commentator Tso tells us that the third entry refers to an attempt which was made to surprise the city of Ke. This attempt alarmed Loo, we are told, and led to the fortification of the city recorded in the fifth entry. So that three records out of nine are war-

like. But in many years every other line is a battle or a siege.

Tso gives an interesting description of the gallant struggle of the little earldom of Ch'ing against the royal forces and their allies. The earl drew up his men in squares as our great duke did at Waterloo. Each square contained twenty-five chariots, each chariot supported by five files of five men each. The square therefore consisted of fourteen hundred and fifty men. The total of Ch'ing's army is not given, a piece of information generally omitted in these narratives. But the army was marshalled in the orthodox way, having a centre and right and left wings. The earl strictly charged his squares not to move until they saw his flag wave, and then to advance with drums beating and fall upon the foe. The moment came, and the Ch'ingites charged the king's allies, who could not stand the shock, but broke and fled. The three divisions then made a combined attack on the royal army, which received a great defeat; the king himself being wounded by an arrow in the shoulder. The earl was overawed by his own success, and stopped the pursuit, for reverence for the royal dignity was still strong enough to make him shrink from the reputation of having not only defeated, but captured or slain, his liege lord. This narrative is brief; but some of Tso's descriptions of battles cover two or three pages, and we find abundant indications that the states of the Chow dynasty were no novices in the art of war. Yet the primitive age of war in which the personal prowess of the individual warrior was almost as effective in deciding the battle as the skill of the general had not wholly gone by. We read again and again of the exploits of doughty chieftains who signalized their strength and valor in many a tough conflict. One incident is peculiarly interesting because the hero was no other than the father of the great sage Confucius. Shuh Leang Heih was one of a band which attempted to surprise a strongly fortified place, by the common expedient of getting the gate opened to admit a wagon-load of provisions. But, once in, the attacking party found themselves in a trap, for the townsmen were ready in force, and behind them the portcullis was being lowered. Heih,

who was possessed of extraordinary strength, sprang back and held up the portcullis with both hands, keeping his post until the storming party was safe outside.

The war chariots give quite an Homeric flavor to these battle-pieces. Cavalry appear never to have been employed, but the chiefs led their hundreds or thousands of chariots, drawn by four horses abreast, to the field, each of which carried three men—the charioteer in the centre, a bowman on his left, and a spearman on his right. When two armies were encamped opposite to each other, hesitating to begin the decisive battle, sometimes a chariot went out to flout the enemy, and provoke him to the fray. On one occasion three gallant warriors drove up to the camp of Tsin; the archer shot an arrow into the camp, the spearman entered, slew his man, and cut off his ear as a trophy, carried another bodily away, while the charioteer coolly dusted his horses and arranged the harness. The soldiers of Tsin could not stand this insolence, and their chariots were quickly in pursuit in two divisions. Yoh Peh, the archer, kept them in check by shooting horses and drivers right and left, until he had but one arrow left. At that moment a stag bounded up from the forest, and crossed right before his chariot. Yoh Peh shot the animal with his last arrow, and the spearman, Sheh Shuh, descended from the chariot, took up the venison, and politely offered it to the foremost pursuer, with the remark, "It is out of season, but I venture to present this to feast your followers." Paou Kwei, of Tsin, was struck by the cool gallantry of the deed, and stopped the pursuit; so the chariot returned in safety. There was no lack of courage among these buff-coated warriors. Here is an account of a desperate fight between Tsin and Ts'e. The signal to advance was given by beating a drum in the commander-in-chief's chariot, which also bore his flag. Early in the fight the general of Tsin was wounded by an arrow, but he continued beating the drum till the blood ran down his shoes, when he began to waver. His charioteer said, "I have had one arrow through my hand, and another through my arm; but while one of us three is alive to hold the reins

this chariot must go forward. The eyes and ears of the army are on our flag and drum." He then held the reins in his left hand and beat the drum with his right. The well-trained steeds rushed on, and that day the Tsinites gained a great victory.

There was a chivalry about these old soldiers, a boldness of speech and fidelity to their word, which contrast strongly with our idea of the modern Chinaman. The Marquis of Tsin was for long a refugee in Ts'oo, until at last there seemed an opening for his return. Tsin and Ts'oo were rivals contending for the supremacy which was dropping from the feeble hands of the royal house of Chow. Some advised the viscount of Ts'oo not to permit the marquis to return, lest it should be the worse for Ts'oo when so able a man governed the rival state. The viscount invited the exiled marquis to a banquet, and in the course of conversation, asked, "Suppose you were seated on your ancestral throne, and war broke out between Tsin and Ts'oo, what would you do?" The other replied, "If our forces were face to face in hostile array, in remembrance of your kind hospitality, and permitting me to regain my rights, I would retire before you for three marches. If after that you persisted in your wish to manoeuvre with me, I would not refuse to submit to your commands." The plain English of this polite phrase is, "If you want to fight, I'll be ready for you." Years after, when the quondam exile was a mighty prince, war arose between Tsin and Ts'oo. The marquis did not forget his promise. Thrice he retired before his enemy. Ts'oo pressed on, and then the marquis turned and inflicted on his old host a crushing defeat. This is but one among many instances of the display of a lofty nobility of spirit among the ancestors of the arrogant but pusillanimous Chinese whom we know.

In the Ch'un Ts'ew period fighting was the serious business of life for the noble and his retainers at least, but the wearer of the peaceful toga sometimes attained a worthier fame than any captain renowned in arms. The civil government was evidently regarded with great seriousness, even reverence, as a sacred office in which the welfare of the people ought to be the first object.

Those dukes and earls were most of them licentious and cruel tyrants, and frequently they found prime ministers who played jackal to their master's tiger. But it was not always so. Among the civil magistrates there were those who displayed a calm courage in rebuking or remonstrating with their despotic masters and a heroic readiness to die for their principles, which outvie the rude valor of the warrior tribe. We read in this book very little about the divine right of kings, though that was an article of their creed; but much about the divine duty of kings. Some of these councillors dared to tell their lords of their faults in plain speech. Others lay in wait for a suitable opportunity. Such an one was Gan-tsze of Ts'e. He was a trusty servant to the Duke of Ts'e, and one day the duke said to him, "Your house is too near the market. The noise and dust must annoy you. Besides, it is too small. I will build you a better one." Gan-tsze declined the offer on the plea that what was good enough for his father was good enough for him; "besides," said he, "it is so convenient to live near the market, I can always get what I want easily." The duke laughingly rejoined, "Of course you know the prices of things, then. Tell me what is cheap and what is dear." Gan-tsze replied, "Shoes for people whose toes have been cut off are dear, but other shoes are cheap." Cutting off the toes was one of the forms of punishment in Ts'e, and this duke was so severe in inflicting it that there were persons who sold shoes specially made for the toeless.

Gan-tsze's reply set the duke thinking, and from that time he diminished the severity of his judgments. Afterwards, however, he took advantage of Gan-tsze's absence on an embassy to erect a fine mansion for him, to make room for which he pulled down some houses of the common people, and of course without going through the formality of getting an act of Parliament passed, and providing compensation for the evicted proprietors. Gan-tsze came back, and learnt what was done. He went to court, reported his mission, and returned

thanks for the ducal favor in presenting him with so splendid an abode. He then went home, had the new house razed to the ground, rebuilt the dwellings which had stood on the site, and reinstalled their inhabitants. A fine character was Gan-tsze, and one feels inclined to shake hands with him across the ages, and tell him how much we admire him. Tsze-chan, whom we mentioned in a former number as the butt of Leih-tsze's wit, was one of the noblest of these upright ministers; but his story would take too long.

Many interesting particulars of old Chinese life may be gathered from these pages. Some features of society then were repulsively cruel. Punishments were barbarous. The practice of interring living persons with the dead at the funerals of great men was not unknown, though it seems not to have been common. We find no traces of idolatry, but a simple form of monotheism, combined with the worship of the spirits of nature and of deceased ancestors, prevailed. Details of their daily life are abundant. We learn that they were fond of music and of chess. There is quite a detailed account of the formation of a fire-brigade in one city—perhaps the earliest organized precaution against fire ever undertaken. And, strange to say, amid this medley of fighting lords and barons, an enthusiastic precursor of the Peace Society started an attempt to put down war, and effect universal peace, by the establishment of a congress and court of appeal for all the states; and he met with much encouragement too in high quarters, and gained a great though short-lived fame. We promise any one who is daring enough to face the formidable-looking Chinese characters arrayed in solid columns in the text, and scattered up and down in the notes of Dr. Legge's translation, and patient enough to thread the story from page to page, that he will find an abundant reward in the pleasure of becoming acquainted with a new and most interesting chapter of the world's history.—*Cornhill Magazine.*

IN MEMORY OF BARRY CORNWALL.

BY ALGERNON CHARLES SWINBURNE.

I.

IN the garden of death, where the singers whose names are deathless
 One with another make music unheard of men,
 Where the dead sweet roses fade not of lips long breathless,
 And the fair eyes shine that shall weep not or change again,
 Who comes now crowned with the blossom of snow-white years?
 What music is this that the world of the dead men hears?

II.

Beloved of men, whose words on our lips were honey,
 Whose name in our ears and our father's ears was sweet,
 Like summer gone forth of the land his songs made sunny,
 To the beautiful veiled bright world where the glad ghosts meet,
 Child with father, and bridegroom with bride, and anguish with rest,
 No soul shall pass of a singer than this more blest.

III.

Blest for the years' sweet sake that were filled and brightened,
 As a forest with birds, with the fruit and the flower of his song,
 For the souls' sake blest that heard, and their cares were lightened,
 For the hearts' sake blest that have fostered his name so long,
 By the living and dead lips blest that have loved his name,
 And clothed with their praise and crowned with their love for fame.

IV.

Ah, fair and fragrant his fame as flowers that close not,
 That shrink not by day for heat or for cold by night,
 As a thought in the heart shall increase when the heart's self knows not,
 Shall endure in our ears as a sound, in our eyes as a light;
 Shall wax with the years that wane and the seasons' chime,
 As a white rose thornless that grows in the garden of time.

V.

The same year calls, and one goes hence with another,
 And men sit sad that were glad for their sweet songs' sake;
 The same year beckons, and elder with younger brother
 Takes mutely the cup from his hand that we all shall take.
 They pass ere the leaves be past or the snows be come;
 And the birds are loud, but the lips that outsang them dumb.

VI.

Time takes them home that we loved, fair names and famous,
 To the soft long sleep, to the broad sweet bosom of death;
 But the flower of their souls he shall take not away to shame us,
 Nor the lips lack song forever that now lack breath.
 For with us shall the music and perfume that die not dwell,
 Though the dead to our dead bid welcome, and we farewell.

Fortnightly Review.

FAR FROM THE MADDING CROWD.

CHAPTER XLVIII.

DOUBTS ARISE : DOUBTS VANISH.

BATHSHEBA underwent the enlargement of her husband's absence from hours to days with a slight feeling of surprise, and a slight feeling of relief; yet neither sensation rose at any time far above the level commonly designated as indifference. She belonged to him: the certainties of that position were so well defined, and the reasonable probabilities of its issue so bounded, that she could not speculate on contingencies. Taking no further interest in herself as a splendid woman, she acquired the indifferent feelings of an outsider in contemplating her probable fate as an interesting wretch; for Bathsheba drew herself and her future in colors that no reality could exceed for darkness. Her original vigorous pride of youth had sickened, and with it had declined all her anxieties about coming years, since anxiety recognises a better and a worse alternative, and Bathsheba had made up her mind that alternatives on any noteworthy scale had ceased for her. Soon, or later—and that not very late—her husband would be home again. And then the days of their tenancy of the Upper Farm would be numbered. There had originally been shown by the agent to the estate some distrust of Bathsheba's tenure as James Everdene's successor, on the score of her sex, and her youth, and her beauty; but the peculiar nature of her uncle's will, his own frequent testimony before his death to her cleverness in such a pursuit, and her vigorous marshalling of the numerous flocks and herds which came suddenly into her hands before negotiations were concluded, had won confidence in her powers, and no further objections had been raised. She had latterly been in great doubt as to what the legal effects of her marriage would be upon her position; but no notice had been taken as yet of her change of name, and only one point was clear, that in the event of her own or of her husband's inability to meet the agent at the forthcoming January rent-day, very little consideration would

be shown, and, for that matter, very little would be deserved. Once out of the farm, the approach of poverty would be sure.

Hence Bathsheba lived in a perception that her purposes were broken off. She was not a woman who could hope on without good materials for the process, differing thus from the less farsighted and energetic, though more petted ones of the sex, with whom hope goes on as a sort of clockwork which the merest food and shelter are sufficient to wind up; and perceiving clearly that her mistake had been a fatal one, she accepted her position, and waited coldly for the end.

The first Saturday after Troy's departure she went to Casterbridge alone, a journey she had not before taken since her marriage. On this Saturday Bathsheba was passing slowly on foot through the crowd of rural business-men gathered as usual in front of the market-house, and as usual gazed upon by the burghers with feelings that those healthy lives were dearly paid for by the lack of possible aldermanship, when a man, who had apparently been following her, said some words to another on her left hand. Bathsheba's ears were keen as those of any wild animal, and she distinctly heard what the speaker said, though her back was towards him. "I am looking for Mrs. Troy. Is that she there?"

"Yes; that's the young lady, I believe," said the person addressed.

"I have some awkward news to break to her. Her husband is drowned."

As if endowed with the spirit of prophecy, Bathsheba gasped out, "Oh, it is not true; it cannot be true!" Then she said and heard no more. The ice of self-command which had latterly gathered over her was broken, and the currents burst forth again, and overwhelmed her. A darkness came into her eyes, and she fell.

But not to the ground. A gloomy man, who had been observing her from under the portico of the old corn-exchange when she passed through the group without, stepped quickly to her side at the moment of her exclamation,

and caught her in his arms as she sank down.

"What is it?" said Boldwood, looking up at the bringer of the big news as he supported her.

"Her husband was drowned this week while bathing in Carow Cove. A coast-guardsman found his clothes and brought them into Budmouth yesterday."

Thereupon a strange fire lighted up Boldwood's eye, and his face flushed with the suppressed excitement of an unutterable thought. Everybody's glance was now centred upon him and the unconscious Bathsheba. He lifted her bodily off the ground, and smoothed down the folds of her dress as a child might have taken a storm-beaten bird and arranged its ruffled plumes, and bore her along the pavement to the Three Choughs Inn. Here he passed with her under the archway into a private room, and by the time he had deposited—so lothly—the precious burden upon a sofa, Bathsheba had opened her eyes, and remembering all that had occurred, murmured, "I want to go home!"

Boldwood left the room. He stood for a moment in the passage to recover his senses. The experience had been too much for his consciousness to keep up with, and now that he had grasped it it had gone again. For those few heavenly golden moments she had been in his arms. What did it matter about her not knowing it? She had been close to his breast; he had been close to hers.

He started onward again, and sending a woman to her, went out to ascertain all the facts of the case. These appeared to be limited to what he had already heard. He then ordered her horse to be put into the gig, and when all was ready returned to inform her. He found that though still pale and unwell, she had in the mean time sent for the Budmouth man who brought the tidings, and learnt from him all there was to know.

Being hardly in a condition to drive home as she had driven to town, Boldwood, with every delicacy of manner and feeling, offered to get her a driver, or to give her a seat in his phaeton, which was more comfortable than her own conveyance. These proposals Bathsheba gently declined, and the far-

mer at once departed. About half an hour later she invigorated herself by an effort, and took her seat and the reins as usual—in external appearance much as if nothing had happened. She went out of the town by a tortuous back street, and drove slowly along, unconscious of the road and the scene. The first shades of evening were showing themselves when Bathsheba reached home, when, silently alighting and leaving the horse in the hands of the boy, she proceeded at once upstairs. Liddy met her on the landing. The news had preceded Bathsheba to Weatherbury by half an hour, and Liddy looked inquiringly into her mistress's face. Bathsheba had nothing to say.

She entered her bedroom and sat by the window, and thought and thought till night enveloped her, and the extreme lines only of her shape were visible. Somebody came to the door, knocked, and opened it.

"Well, what is it, Liddy?" she said.

"I was thinking there must be something got for you to wear," said Liddy, with hesitation.

"What do you mean?"

"Mourning."

"No, no, no," said Bathsheba, hurriedly.

"But I suppose there must be something done for poor—"

"Not at present, I think. It is not necessary."

"Why not, ma'am?"

"Because he's still alive."

"How do you know that?" said Liddy, amazed.

"I don't know it. But wouldn't it have been different, or shouldn't I have heard more, or wouldn't they have found him, Liddy?—or—I don't know how it is, but death would have been different from how this is. I am full of a feeling that he is still alive!"

Bathsheba remained firm in this opinion till Monday, when two circumstances conjoined to shake it. The first was a short paragraph in the local newspaper, which, beyond making by a methodizing pen formidable presumptive evidence of Troy's death by drowning, contained the important testimony of a young Mr. Barker, M.D., of Budmouth, who spoke to being an eye-witness of the accident,

in a letter to the editor. In this he stated that he was passing over the cliff on the remoter side of the cove just as the sun was setting. At that time he saw a bather carried along in the current outside the mouth of the cove, and guessed in an instant that there was but a poor chance for him unless he should be possessed of unusual muscular powers. He drifted behind a projection of the coast, and Mr. Barker followed along the shore in the same direction. But by the time that he could reach an elevation sufficiently great to command a view of the sea beyond, dusk had set in, and nothing further was to be seen.

The other circumstance was the arrival of his clothes, when it became necessary for her to examine and identify them—though this had virtually been done long before by those who inspected the letters in his pockets. It was so evident to her in the midst of her agitation that Troy had undressed in the full conviction of dressing again almost immediately, that the notion that anything but death could have prevented him was never entertained.

Then Bathsheba said to herself that others were assured in their opinion, and why should not she be? A strange reflection occurred to her, causing her face to flush. Troy had left her, and followed Fanny into another world. Had he done this intentionally, yet contrived to make his death appear like an accident? Oddly enough, this thought of how the apparent might differ from the real—made vivid by her bygone jealousy of Fanny, and the remorse he had shown that night—blinded her to the perception of any other possible difference, less tragic, but to herself far more terrible.

When alone late that evening beside a small fire, and much calmed down, Bathsheba took Troy's watch into her hand, which had been restored to her with the rest of the articles belonging to him. She opened the case as he had opened it before her a week ago. There was the little coil of pale hair which had been as the fuze to this great explosion.

"He was hers and she was his, and they are gone together," she said. "I am nothing to either of them, and why

should I keep her hair?" She took it in her hand, and held it over the fire. "No, I'll not burn it—I'll keep it in memory of her, poor thing!" she added, snatching back her hand.

CHAPTER XLIX.

OAK'S ADVANCEMENT: A GREAT HOPE.

THE later autumn and the winter drew on apace, and the leaves lay thick upon the turf of the glades and the mosses of the woods. Bathsheba, having previously been living in a state of suspended feeling which was not suspense, now lived in a mood of quietude which was not precisely peacefulness. While she had known him to be alive she could have thought of his death with equanimity; but now that she believed she had lost him, she regretted that he was not hers still. She kept the farm going, raked in her profits without caring keenly about them, and expended money on ventures because she had done so in by-gone days, which, though not long gone by, seemed infinitely removed from her present. She looked back upon that past over a great gulf, as if she were now a dead person, having the faculty of meditation still left in her, by means of which, like the mouldering gentlefolk of the poet's story, she could sit and ponder what a gift life used to be.

However, one excellent result of her general apathy was the long-delayed installation of Oak as bailiff; but he having virtually exercised that function for a long time already, the change, beyond the substantial increase of wages it brought, was little more than a nominal one addressed to the outside world.

Boldwood lived secluded and inactive. Much of his wheat and all his barley of that season had been spoilt by the rain. It sprouted, grew into intricate mats, and was ultimately thrown to the pigs in armfuls. The strange neglect which had produced this ruin and waste became the subject of whispered talk among all the people round; and it was elicited from one of Boldwood's men that forgetfulness had nothing to do with it, for he had been reminded of the danger to his corn as many times and as persistently as inferiors dared to do. The sight of the pigs turning in disgust

from the rotten ears seemed to arouse Boldwood, and he one evening sent for Oak. Whether it was suggested by Bathsheba's recent act of promotion or not, the farmer proposed at the interview that Gabriel should undertake the superintendence of the Lower Farm as well as of Bathsheba's, because of the necessity Boldwood felt for such aid, and the impossibility of discovering a more trustworthy man. Gabriel's malignant star was assuredly setting fast.

Bathsheba, when she learnt of this proposal—for Oak was obliged to consult her—at first languidly objected. She considered that the two farms together were too extensive for the observation of one man. Boldwood, who was apparently determined by personal rather than commercial reasons, suggested that Oak should be furnished with a horse for his sole use, when the plan would present no difficulty, the two farms lying side by side. Boldwood did not directly communicate with her during these negotiations, only speaking to Oak, who was the go-between throughout. All was harmoniously arranged at last, and we now see Oak mounted on a strong cob, and daily trotting the length and breadth of about two thousand acres in a cheerful spirit of surveillance, as if the crops all belonged to him,—the actual mistress of the one half, and the master of the other, sitting in their respective homes in gloomy and sad seclusion.

Out of this there arose during the spring succeeding, a talk in the parish that Gabriel Oak was feathering his nest fast. "Whatever dy'e think," said Susan Tall, "Gable Oak is coming it quite the dand. He now wears shining boots with hardly a hob in 'em, two or three times a-week, and a tall hat a-Sundays, and 'a hardly knows the name of smock-frock. When I see people strut enough to be cut up into bantam cocks, I stand dormant with wonder, and says no more."

It was eventually known that Gabriel, though paid a fixed wage by Bathsheba independent of the fluctuations of agricultural profits, had made an engagement with Boldwood by which Oak was to receive a share of the receipts—a small share certainly, yet it was money of a higher quality than mere wages, and capable of expansion in a way that

wages were not. Some were beginning to consider Oak a near man, for though his condition had thus far improved, he lived in no better style than before, occupying the same cottage, paring his own potatoes, mending his stockings, and sometimes even making his bed with his own hands. But as Oak was not only provokingly indifferent to public opinion, but a man who clung persistently to old habits and usages, simply because they were old, there was room for doubt as to his motives.

A great hope had latterly germinated in Boldwood, whose unreasoning devotion to Bathsheba could only be characterized as a fond madness which neither time nor circumstance, evil nor good report, could weaken or destroy. This fevered hope had grown up again like a grain of mustard-seed during the quiet which followed the universal belief that Troy was drowned. He nourished it fearfully, and almost shunned the contemplation of it in earnest, lest facts should reveal the wildness of the dream. Bathsheba having at last been persuaded to wear mourning, her appearance as she entered the church in that guise was in itself a weekly addition to his faith that a time was coming—very far off perhaps, yet surely nearing—when his waiting on events should have its reward. How long he might have to wait he had not yet closely considered. What he would try to recognise was, that the severe schooling she had been subjected to had made Bathsheba much more considerate than she had formerly been of the feelings of others, and he trusted that, should she be willing at any time in the future to marry any man at all, that man would be himself. There was a substratum of good feeling in her: her self-reproach for the injury she had thoughtlessly done him might be depended upon now to a much greater extent than before her infatuation and disappointment. It would be possible to approach her by the channel of her good-nature, and to suggest a friendly business-like compact between them for fulfilment at some future day, keeping the passionate side of his desire entirely out of her sight. Such was Boldwood's hope.

To the eyes of the middle-aged, Bathsheba was perhaps additionally charming just now. Her exuberance of spirit

was pruned down; the original phantom of delight had shown herself to be not too bright for human nature's daily food, and she had been able to enter this second poetical phase without losing much of the first in the process.

Bathsheba's return from a two months' visit to her old aunt at Norcombe afforded the impassioned and yearning farmer a pretext for inquiring directly after her—now presumably in the ninth month of her widowhood—and endeavoring to get a notion of her state of mind regarding him. This occurred in the middle of the haymaking, and Boldwood contrived to be near Liddy, who was assisting in the fields.

"I am glad to see you out of doors, Lydia," he said, pleasantly.

She simpered, and wondered in her heart why he should speak so frankly to her.

"I hope Mrs. Troy is quite well after her long absence," he continued, in a manner expressing that the coldest-hearted neighbor could scarcely say less about her.

"She is quite well, sir."

"And cheerful, I suppose?"

"Yes, cheerful."

"Fearful, did you say?"

"O no. I merely said she was cheerful."

"Tells you all her affairs?"

"No, sir."

"Some of them?"

"Yes, sir."

"Mrs. Troy puts much confidence in you, Lydia; and very wisely perhaps."

"She do, sir. I've been with her all through her troubles, and was with her at the time of Mr. Troy's death and all. And if she were to marry again I expect I should bide with her."

"She promises that you shall—quite natural," said the strategic lover, throbbing throughout him at the presumption which Liddy's words appeared to warrant—that his darling had thought of re-marriage.

"No—she doesn't promise it exactly. I merely judge on my own account."

"Yes, yes, I understand. When she alludes to the possibility of marrying again, you conclude—"

"She never do allude to it, sir," said Liddy, thinking how very stupid Mr. Boldwood was getting.

"Of course not," he returned hastily, his hope falling again. "You needn't take quite such long reaches with your rake, Lydia—short and quick ones are best. Well, perhaps, as she is absolute mistress again now, it is wise of her to resolve never to give up her freedom."

"My mistress did once certainly say, though not seriously, that she supposed she might marry again at the end of seven years from last year, if she wished."

"Ah, six years from the present time. Said that she might. She might marry at once in every reasonable person's opinion, whatever the lawyers may say to the contrary."

"Have you been to ask them?" said Liddy, innocently.

"Not I!" said Boldwood, growing red. "Liddy, you needn't stay here a minute later than you wish, so Mr. Oak says. I am now going on a little further. Good afternoon."

He went away vexed with himself and ashamed of having for this one time in his life done anything which could be called underhand. Poor Boldwood had no more skill in finesse than a battering-ram, and he was uneasy with a sense of having made himself to appear stupid, and, what was worse, mean. But he had, after all, lighted upon one fact by way of repayment. It was a singularly fresh and fascinating fact, and though not without its sadness it was pertinent and real. In little more than six years from this time Bathsheba might certainly marry him. There was something definite in that hope, for admitting that there might have been no deep thought in her words to Liddy about marriage, they showed at least her creed on the matter.

This pleasant notion was now continually in his mind. Six years were a long time, but how much shorter than never, the idea he had for so long been obliged to endure! Jacob had served twice seven years for Rachel: what were six for such a woman as this? He tried to like the notion of waiting for her better than that of winning her at once. Boldwood felt his love to be so deep and strong and eternal, that it was possible she had never yet known its full volume, and this patience in delay would afford him an opportunity of giving sweet proof on the point. He would annihilate the six years of his life as if they were minutes—so little did he

value his time on earth beside her love. He would let her see, all those six years of intangible ethereal courtship, how little care he had for anything but as it bore upon the consummation.

Meanwhile the early and the late summer brought round the week in which Greenhill Fair was held. This fair was frequently attended by the folk of Weatherbury.

CHAPTER L.

THE SHEEP FAIR : TROY TOUCHES HIS WIFE'S HAND.

GREENHILL was the Nijni Novgorod of Wessex ; and the busiest, merriest, noisiest day of the whole statute number was the day of the sheep-fair. This yearly gathering was upon the summit of a hill which retained in good preservation the remains of an ancient earthwork, consisting of a huge rampart and entrenchment of an oval form encircling the top of the hill, though somewhat broken down here and there. To each of the two chief openings on opposite sides a winding road ascended, and the level green space of twenty or thirty acres enclosed by the bank was the site of the fair. A few permanent erections dotted the spot, but the majority of visitors patronised canvas alone for resting and feeding under during the time of their sojourn here.

Shepherds who attended with their flocks from long distances started from home two or three days, or even a week, before the fair, driving their charges a few miles each day—not more than ten or twelve—and resting them at night in hired fields by the wayside at previously chosen points, where they fed, having fasted since morning. The shepherd of each flock marched behind, a bundle containing his kit for the week strapped upon his shoulders, and in his hand his crook, which he used as the staff of the pilgrimage. Several of the sheep would get worn and lame, and occasionally a lambing occurred on the road. To meet these contingencies, there was frequently provided, to accompany the flocks from the remoter points, a pony and wagon into which the weakly one were taken for the remainder of the journey.

The Weatherbury Farms, however, were no such long distance from the hill, and those arrangements were not necessary in their case. But the large united flocks of

Bathsheba and Farmer Boldwood formed a valuable and imposing multitude which demanded much attention, and on this account Gabriel, in addition to Boldwood's shepherd and Cain Ball, accompanied them along the way—old George the dog of course behind them.

When the autumn sun slanted over Greenhill this morning and lighted the dewy flat upon its crest, nebulous clouds of dust were to be seen floating between the pairs of hedges which streaked the wide prospects around in all directions. These gradually converged upon the base of the hill, and the flocks became individually visible, climbing the serpentine ways which led to the top. Thus in a slow procession they entered the openings to which the roads wended, multitude after multitude, horned and hornless—blue flocks and red flocks, buff flocks and brown flocks, even green and salmon-tinted flocks, according to the fancy of the colorist and custom of the farm. Men were shouting, dogs were barking, with greatest animation, but the thronging travellers in so long a journey had grown nearly indifferent to such terrors, though they still bleated piteously at the unwontedness of their experiences, a tall shepherd rising here and there in the midst of them, like a gigantic idol amid a crowd of prostrate devotees.

The great mass of sheep in the fair consisted of South Downs and the old Wessex horned breeds ; to the latter class Bathsheba's and Farmer Boldwood's mainly belonged. These filed in about nine o'clock, their vermiculated horns lopping gracefully on each side of their cheeks in geometrically perfect spirals, a small pink and white ear nestling under each horn. Before and behind came other varieties, perfect leopards as to the full rich substance of their coats, and only lacking the spots. There were also a few of the Oxfordshire breed, whose wool was beginning to curl like a child's flaxen hair, though surpassed in this respect by the effeminate Leicesters, which were in turn less curly than the Cottswolds. But the most picturesque by far was a small flock of Exmoors, which chanced to be there this year. Their pied faces and legs, dark and heavy horns, tresses of wool hanging round their swarthy foreheads, quite relieved the monotony of the flocks in that quarter. All these bleating, panting, and weary thousands had entered and were penned before the morning had

far advanced, the dog belonging to each flock being tied to the corner of the pen containing it. Alleys for pedestrians intersected the pens, which soon became crowded with buyers and sellers from far and near.

In another part of the hill an altogether different scene began to force itself upon the eye towards midday. A circular tent, of exceptional newness and size, was in course of erection here. As the day drew on, the flocks began to change hands, lightening the shepherds' responsibilities; and they turned their attention to this tent and inquired of a man at work there, whose soul seemed concentrated on tying a bothering knot in no time, what was going on.

"The Royal Hippodrome Performance of Tu-*pin*'s Ride to York and the Death of Black Bess," replied the man promptly, without turning his eyes or leaving off tying.

As soon as the tent was completed, the band struck up highly stimulating harmonies, and the announcement was publicly made, Black Bess standing in a conspicuous position on the outside, as a living proof, if proof were wanted, of the truth of the oracular utterances from the stage over which the people were to enter. These were so convinced by such genuine appeals to heart and understanding both that they soon began to crowd in abundantly, among the foremost being visible Jan Coggan and Joseph Poorgrass, who were holiday keeping here to-day.

"That's the great ruffin pushing me!" screamed a woman in front of Jan, over her shoulder to him when the rush was at its fiercest.

"How can I help pushing ye when the folk behind push me?" said Coggan, in a deprecating tone, turning his head towards the aforesaid folk as far as he could without turning his body, which was jammed as in a vice.

There was a silence; then the drums and trumpets again sent forth their echoing notes. The crowd was again ecstasied, and gave another lurch in which Coggan and Poorgrass were again thrust by those behind upon the women in front.

"O that helpless feymels should be at the mercy of such ruffins!" exclaimed one of these ladies again, as she swayed like a reed shaken by the wind.

"Now," said Coggan, appealing in an

earnest voice to the public at large as it stood clustered about his shoulder-blades, "did ye ever hear such a unreasonable woman as that? Upon my carcase, neighbors, if I could only get out of this cheesestring, the d—— women might eat the show for me!"

"Don't ye lose yer temper, Jan!" implored Joseph Poorgrass, in a whisper. "They might get their men to murder us, for I think by the shine of their eyes that they are a sinful form of womankind."

Jan held his tongue, as if he had no objection to be pacified to please a friend, and they gradually reached the foot of the ladder, Poorgrass being flattened like a jumping-jack, and the sixpence, for admission, which he had got ready half an hour earlier, having become so reeking hot in the tight squeeze of his excited hand that the woman in spangles, brazen rings set with glass diamonds, and with chalked face and shoulders, who took the money of him, hastily dropped it again from a fear that some trick had been played to burn her fingers. So they all entered, and the sides of the tent, to the eyes of an observer on the outside, became bulged into innumerable pimples such as we observe on a sack of potatoes, caused by the various human heads, backs, and elbows at high-pressure within.

At the rear of the large tent there were two small dressing-tents. One of these, allotted to the male performers, was partitioned into halves by a cloth; and in one of the divisions there was sitting on the grass, pulling on a pair of jackboots, a young man whom we instantly recognise as Sergeant Troy.

Troy's appearance in this position may be briefly accounted for. The brig aboard which he was taken in Budmouth Roads was about to start on a voyage, though somewhat short of hands. Troy read the articles and joined, and, before they sailed, a boat was dispatched across the bay to Carrow Cove; but, as he had half expected, his clothes were gone. He ultimately worked his passage to the United States, where he made a precarious living in various towns as Professor of Gymnastics, Sword Exercise, Fencing, and Pugilism. A few months were sufficient to give him a distaste for this kind of life. There was a certain animal form of refinement in his nature; and however pleasant a strange condition might be whilst privations were easily

warded off, it was disadvantageously coarse when money was short. There was ever present, too, the idea that he could claim a home and its comforts did he but choose to return to England and Weatherbury Farm. Whether Bathsheba thought him dead was a frequent subject of curious conjecture. To England he did return at last; but the fact of drawing nearer to Weatherbury abstracted its fascinations, and his intention to enter his old groove at that place became modified. It was with gloom he considered on landing at Liverpool that if he were to go home his reception would be of a kind very unpleasant to contemplate; for what Troy had in the way of emotion was an occasional fitful sentiment which sometimes caused him as much inconvenience as emotion of a strong and healthy kind. Bathsheba was not a woman to be made a fool of, or a woman to suffer in silence; and how could he endure existence with a spirited wife to whom at first entering he would be beholden for food and lodging? Moreover, it was not at all unlikely that his wife would fail at her farming, if she had not already done so; and he would then become liable for her maintenance: and what a life and future of poverty with her would be, the spectre of Fanny constantly between them, harrowing his temper and embittering her words! Thus, for reasons touching on distaste, regret, and shame commingled, he put off his return from day to day, and would have decided to put it off altogether if he could have found anywhere else the ready-made establishment which existed for him there.

At this time—the July preceding the September in which we find him at Greenhill Fair—he fell in with a travelling circus which was performing in the outskirts of a northern town. Troy introduced himself to the manager by taming a restive horse of the troupe, hitting a suspended apple with a pistol-bullet fired from the animal's back when in full gallop, and other feats. For his merits in these—all more or less based upon his experiences as a dragoon-guardsman—Troy was taken into the company, and the play of Turpin was prepared with a view to his personation of the chief character. Troy was not greatly elated by the appreciative spirit in which he was undoubtedly treated, but he thought the engagement might afford him a few weeks for consideration.

It was thus carelessly, and without having formed any definite plan for the future, that Troy found himself at Greenhill Fair with the rest of the company on this day.

And now the mild autumn sun got lower, and in front of the pavilion the following incident had taken place. Bathsheba—who was driven to the fair that day by her odd man Pooggrass—had, like every one else, read or heard the announcement that Mr. Francis, the Great Cosmopolite Equestrian and Roughrider, would enact the part of Turpin, and she was not yet too old and careworn to be without a little curiosity to see him. This particular show was by far the largest and grandest in the fair, a horde of little shows grouping themselves under its shade like chickens around a hen. The crowd had passed in, and Boldwood, who had been watching all the day for an opportunity of speaking to her, seeing her comparatively isolated, came up to her side.

"I hope the sheep have done well to-day, Mrs. Troy?" he said nervously.

"O yes, thank you," said Bathsheba, color springing up in the centre of her cheeks. "I was fortunate enough to sell them all before we got upon the hill, so we hadn't to pen at all."

"And now you are entirely at leisure?"

"Yes, except that I have to see one more dealer in two hours' time: otherwise I should be going home. I was looking at this large tent and the announcement. Have you ever seen the play of 'Turpin's Ride to York?' Turpin was a real man, was he not?"

"O yes, perfectly true—all of it. Indeed, I think I've heard Jan Coggan say that a relation of his knew Tom King, Turpin's friend, quite well."

"Coggan is rather given to strange stories connected with his relations, we must remember. I hope they can all be believed."

"Yes, yes; we know Coggan. But Turpin is true enough. You have never seen it played, I suppose?"

"Never. I was not allowed to go into these places when I was young. Hark! what's that prancing? How they shout!"

"Black Bess just starting off, I suppose. Am I right in supposing you would like to see the performance, Mrs. Troy? Please excuse my mistake, if it is one; but if you would like to, I'll get a seat for you with

pleasure." Perceiving that she hesitated, he added, "I myself shall not stay to see it: I've seen it before."

Now Bathsheba did care a little to see the show, and had only withheld her feet from the ladder because she feared to go in alone. She had been hoping that Oak might appear, whose assistance in such cases was always accepted as an inalienable right, but Oak was nowhere to be seen; and hence it was that she said, "Then if you will just look in first, to see if there's room, I think I will go in for a minute or two."

And so a short time after this Bathsheba appeared in the tent with Boldwood at her elbow, who, taking her to a "reserved" seat, again withdrew.

This feature consisted of one raised bench in a very conspicuous part of the circle, covered with red cloth, and floored with a piece of carpet, and Bathsheba immediately found, to her confusion, that she was the single reserved individual in the tent, the rest of the crowded spectators one and all standing on their legs on the borders of the arena, where they got twice as good a view of the performance for half the money. Hence as many eyes were turned upon her, enthroned alone in this place of honor, against a scarlet background, as upon the ponies and clown who were engaged in preliminary exploits in the centre, Turpin not having yet appeared. Once there, Bathsheba was forced to make the best of it and remain: she sat down, spreading her skirts with some dignity over the unoccupied space on each side of her, and giving a new and feminine aspect to the pavilion. In a few minutes she noticed the fat red nape of Coggan's neck among those standing just below her, and Joseph Poorgrass's saintly profile a little further on.

The interior was shadowy with a peculiar shade. The strange luminous semi-opacities of fine autumn afternoons and eves intensified into Rembrandt effects the few yellow sunbeams which came through holes and divisions in the canvas, and spirted like jets of gold-dust across the dusky blue atmosphere of haze pervading the tent, until they alighted on inner surfaces of cloth opposite, and shone like little lamps suspended there.

Troy, on peeping from his dressing-tent through a slit for a reconnoitre before entering, saw his unconscious wife on high

before him as described, sitting as queen of the tournament. He started back in utter confusion, for although his disguise effectually concealed his personality, he instantly felt that she would be sure to recognise his voice. He had several times during the day thought of the possibility of some Weatherbury person or other appearing and recognising him; but he had taken the risk carelessly. If they see me, let them, he had said. But here was Bathsheba in her own person; and the reality of the scene was so much intenser than any of his prefigurings that he felt he had not half enough considered the point. She looked so charming and fair that his cool mood about Weatherbury people was changed. He had not expected her to exercise this power over him in the twinkling of an eye. Should he go on, and care nothing? He could not bring himself to do that. Beyond a politic wish to remain unknown, there suddenly arose in him now a sense of shame at the possibility that his attractive young wife, who already despised him, should despise him more by discovering him in so mean a condition after so long a time. He actually blushed at the thought, and was vexed beyond measure that his sentiments of dislike towards Weatherbury should have led him to dally about the country in this way. But Troy was never more clever than when absolutely at his wit's end. He hastily thrust aside the curtain dividing his own little dressing space from that of the manager and proprietor, who now appeared as the individual called Tom King as far down as his waist, and the aforesaid respectable manager thence to his toes.

"Here's the d—— to pay!" said Troy.

"How's that?"

"Why, there's a good-for-nothing scamp in the tent I don't want to see, who'll discover me and nab me as sure as Satan if I open my mouth. What's to be done?"

"You must appear now, I think."

"I can't."

"But the play must proceed."

"Do you give out that Turpin has got a bad cold, and can't speak his part, but that he'll perform it just the same without speaking."

The proprietor shook his head.

"Anyhow, play or no play, I won't open my mouth," said Troy, firmly.

"Very well, then let me see. I tell you

how we'll manage," said the other, who perhaps felt it would be extremely awkward to offend his leading man just at this time. "I won't tell them anything about your keeping silence; go on with the piece and say nothing, doing what you can by a judicious wink now and then, and a few indomitable nods in the heroic places, you know. They'll never find out that the speeches are omitted."

This seemed feasible enough, for Turpin's speeches were not many or long, the fascination of the piece lying entirely in the action; and accordingly the play began, and at the appointed time Black Bess leapt into the grassy circle amid the plaudits of the spectators. At the turnpike scene, where Bess and Turpin are hotly pursued at midnight by the officers, and the half-awake gate-keeper in his tasselled nightcap denies that any horseman has passed, Coggan uttered a broad-chested, "Well done!" which could be heard all over the fair above the bleating, and Poorglass smiled delightedly with a nice sense of dramatic contrast between our hero, who coolly leaps the gate, and halting justice in the form of his enemies, who must needs pull up cumbersomely and wait to be let through. At the death of Tom King, he could not refrain from seizing Coggan by the hand, and whispering, with tears in his eyes, "Of course he's not really shot, Jan—only seemingly!" And when the last sad scene came on, and the body of the gallant and faithful Bess had to be carried out on a shutter by twelve volunteers from among the spectators, nothing could restrain Poorglass from lending a hand, exclaiming, as he asked Jan to join him, "Twill be something to tell of at Warren's in future years, Jan, and hand down to our children." For many a year in Weatherbury Joseph told, with the air of a man who had had experiences in his time, that he touched with his own hand the hoof of Bess as she lay upon the board upon his shoulder. If, as some thinkers hold, immortality consists in being enshrined in others' memories, then did Black Bess become immortal that day, if she never had done so before.

Meanwhile Troy had added a few touches to his ordinary make-up for the character, the more effectually to disguise himself, and though he had felt faint qualms on first entering, the metamorphosis effected by judiciously "lining" his face with a

wire rendered him safe from the eyes of Bathsheba and her men. Nevertheless, he was relieved when it was got through. There was a second performance in the evening, and the tent was lighted up. Troy had taken his part very quietly this time, venturing to introduce a few speeches on occasion; and was just concluding it when, whilst standing at the edge of the circle contiguous to the first row of spectators, he observed within a yard of him the eye of a man darted keenly into his side features. Troy hastily shifted his position, after having recognised in the scrutineer the knavish bailiff Pennyways, his wife's sworn enemy, who still hung about the outskirts of Weatherbury.

At first Troy resolved to take no notice and abide by circumstances. That he had been recognised by this man was highly probable; yet there was room for a doubt. Then the great objection he had felt to allowing news of his proximity to precede him to Weatherbury in the event of his return, based on a feeling that knowledge of his present occupation would discredit him still further in his wife's eyes, returned in full force. Moreover, should he resolve not to return at all, a tale of his being alive and being in the neighborhood would be awkward; and he was anxious to acquire a knowledge of his wife's temporal affairs before deciding which to do.

In this dilemma Troy at once went out to reconnoitre. It occurred to him that to find Pennyways, and make a friend of him if possible, would be a very wise act. He had put on a thick beard borrowed from the establishment, and in this he wandered about the fair-field. It was now almost dark, and respectable people were getting their carts and gigs ready to go home.

The largest refreshment-booth in the fair was provided by an innkeeper from a neighboring town. This was considered an unexceptionable place for obtaining the necessary food and rest: Host Trencher (as he was wittily called by the local newspaper) being a substantial man of high repute for catering through all the country round. The tent was divided into first and second-class compartments, and at the end of the first-class division was a yet further enclosure for the most exclusive, fenced off from the body of the tent by a luncheon-bar, behind which the host himself stood, bustling about in white apron

and shirt-sleeves, and looking as if he had never lived anywhere but under canvas all his life. In these penetralia were chairs and a table, which, on candles being lighted, made quite a cozy and luxurious show, with an urn, silver tea and coffee pots, china teacups, and plum cakes.

Troy stood at the entrance to the booth, where a gipsy-woman was frying pancakes over a little fire of sticks and selling them at a penny a piece, and looked over the heads of the people within. He could see nothing of Pennyways, but he soon discerned Bathsheba through an opening into the reserved space at the further end. Troy thereupon retreated, went round the tent into the darkness, and listened. He could hear Bathsheba's voice immediately inside the canvas; she was conversing with a man. A warmth overspread his face: surely she was not so unprincipled as to flirt in a fair! He wondered if, then, she reckoned upon his death as an absolute certainty. To get at the root of the matter, Troy took a penknife from his pocket and softly made two little cuts crosswise in the cloth, which, by folding back the corners left a hole the size of a wafer. Close to this he placed his face, withdrawing it again in a movement of surprise; for his eye had been within twelve inches of the top of Bathsheba's head. It was too near to be convenient. He made another hole a little to one side and lower down, in a shaded place beside her chair, from which it was easy and safe to survey her by looking horizontally.

Troy took in the scene completely now. She was leaning back, sipping a cup of tea that she held in her hand, and the owner of the male voice was Boldwood, who had apparently just brought the cup to her. Bathsheba, being in a negligent mood, leant so idly against the canvas that it was pressed to the shape of her shoulder, and she was, in fact, as good as in Troy's arms; and he was obliged to keep his breast carefully backward that she might not feel its warmth through the cloth as he gazed in.

Troy found unexpected chords of feeling to be stirred again within him as they had been stirred earlier in the day. She was handsome as ever, and she was his. It was some minutes before he could counteract his sudden wish to go in, and claim her. Then he thought how the proud girl who had always looked down upon

him even whilst it was to love him, would hate him on discovering him to be a strolling player. Were he to make himself known, that chapter of his life must at all risks be kept forever from her and from the Weatherbury people, or his name would be a byword throughout the parish. He would be nicknamed "Turpin" as long as he lived. Assuredly before he could claim her these few past months of his existence must be entirely blotted out.

"Shall I get you another cup before you start, ma'am?" said Farmer Boldwood.

"Thank you," said Bathsheba. "But I must be going at once. It was great neglect in that man to keep me waiting here till so late. I should have gone two hours ago, if it had not been for him. I had no idea of coming in here; but there's nothing so refreshing as a cup of tea, though I should never have got one if you hadn't helped me."

Troy scrutinised her cheek as lit by the candles, and watched each varying shade thereon, and the white shell-like sinuosityes of her little ear. She took out her purse and was insisting to Boldwood on paying for her tea for herself, when at this moment Pennyways entered the tent. Troy trembled: here was his scheme for respectability endangered at once. He was about to leave his hole of espial, attempt to follow Pennyways, and find out if the ex-bailiff had recognised him, when he was arrested by the conversation, and found he was too late.

"Excuse me, ma'am," said Pennyways; "I've some private information for your ear alone."

"I cannot hear it now," she said, coldly. That Bathsheba could not endure this man was evident; in fact, he was continually coming to her with some tale or other, by which he might creep into favor at the expense of persons maligned.

"I'll write it down," said Pennyways, confidently. He stooped over the table, pulled a leaf from a warped pocket-book, and wrote upon the paper, in a round hand—

"Your husband is here. I've seen him. Who's the fool now?"

This he folded small, and handed towards her. Bathsheba would not read it; she would not even put out her hand to take it. Pennyways, then, with a laugh of derision, tossed it into her lap, and, turning away, left her.

From the words and action of Pennyways, Troy, though he had not been able to see what the bailiff wrote, had not a moment's doubt that the note referred to him. Nothing that he could think of could be done to check the exposure. "Curse my luck!" he whispered, and added imprecations which rustled in the gloom like a pestilent wind. Meanwhile Boldwood said, taking up the note from her lap—

"Don't you wish to read it, Mrs. Troy? If not, I'll destroy it."

"Oh, well," said Bathsheba, carelessly, "perhaps it is unjust not to read it; but I can guess what it is about. He wants me to recommend him, or it is to tell me of some little scandal or another connected with my workpeople. He's always doing that."

Bathsheba held the note in her right hand. Boldwood handed towards her a plate of cut bread-and-butter; when, in order to take a slice, she put the note into her left hand, where she was still holding the purse, and then allowed her hand to drop beside her close to the canvas. The moment had come for saving his game, and Troy impulsively felt that he would play the card. For yet another time he looked at the fair hand, and saw the pink finger-tips, and the blue veins of the wrist, encircled by a bracelet of coral chippings which she wore: how familiar it all was to him! Then with the lightning action in which he was such an adept, he noiselessly slipped his hand under the bottom of the tent-cloth, which was far from being pinned tightly down, lifted it a little way, keeping his eye to the hole, snatched the note from her fingers, dropped the canvas, and ran away in the gloom towards the bank and ditch, smiling at the scream of astonishment which burst from her. Troy then slid down on the outside of the rampart, hastened round in the bottom of the entrenchment to a distance of a hundred yards, ascended again, and crossed boldly in a slow walk towards the front entrance of the tent. His object was now to get to Pennyways, and prevent a repetition of the announcement until such time as he should choose.

Troy reached the tent door, and standing among the groups there gathered, looked anxiously for Pennyways, evidently not wishing to make himself prominent

by inquiring for him. One or two men were speaking of a daring attempt that had just been made to rob a young lady by lifting the canvas of the tent beside her. It was supposed that the rogue had imagined a slip of paper which she held in her hand to be a bank-note, for he had seized it, and made off with it, leaving her purse behind. His chagrin and disappointment at discovering its worthlessness would be a good joke, it was said. However, the occurrence seemed to have become known to few, for it had not interrupted a fiddler, who had lately begun playing by the door of the tent, nor the four bowed old men with grim countenances and walking-sticks in hand, who were dancing "Major Malley's Reel" to the tune. Behind these stood Pennyways. Troy glided up to him, beckoned, and whispered a few words; and with a mutual glance of concurrence the two men went into the night together.

CHAPTER LI.

BATHSHEBA TALKS WITH HER OUT-RIDER.

THE arrangement for getting back again to Weatherbury had been that Oak should take the place of Poograss in Bathsheba's conveyance and drive her home, it being discovered late in the afternoon that Joseph was suffering from his old complaint, a multiplying eye, and was, therefore, hardly trustworthy as coachman and protector to a lady. But Oak had found himself so occupied, and was full of so many cares relative to those portions of Boldwood's flocks that were not disposed of, that Bathsheba, without telling Oak or anybody, resolved to drive home herself, as she had many times done from Casterbridge Market, and trust to her good angel for performing the journey unmolested. But having fallen in with Farmer Boldwood accidentally (on her part at least) at the refreshment-tent, she found it impossible to refuse his offer to ride on horseback beside her as escort. It had grown twilight before she was aware, but Boldwood assured her that there was no cause for uneasiness, as the moon would be up in half-an-hour.

Immediately after the incident in the tent, she had risen to go—now absolutely alarmed and really grateful for her old lover's protection—though regretting Gabriel's absence, whose company she

would have much preferred, as being more proper as well as more pleasant, since he was her own managing-man and servant. This, however, could not be helped; she would not, on any consideration, treat Boldwood harshly, having once already ill-used him, and the moon having risen, and the gig being ready, she drove across the hill-top in the wending ways which led downwards—to oblivious obscurity, as it seemed, for the moon and the hill it flooded with light were in appearance on a level, the rest of the world lying as a vast shady concave between them. Boldwood mounted his horse, and followed in close attendance behind. Thus they descended into the lowlands, and the sounds of those left on the hill came like voices from the sky, and the lights were as those of a camp in heaven. They soon passed the merry stragglers in the immediate vicinity of the hill, and got upon the high road.

The keen instincts of Bathsheba had perceived that the farmer's staunch devotion to herself was still undiminished, and she sympathised deeply. The sight had quite depressed her this evening; had reminded her of her folly; she wished anew, as she had wished many months ago, for some means of making reparation for her fault. Hence her pity for the man who so persistently loved on to his own injury and permanent gloom had betrayed Bathsheba into an injudicious considerateness of manner, which appeared almost like tenderness, and gave new vigor to the exquisite dream of a Jacob's seven years' service in poor Boldwood's mind.

He soon found an excuse for advancing from his position in the rear, and rode close by her side. They had gone two or three miles in the moonlight, speaking desultorily across the wheel of her gig concerning the fair, farming, Oak's usefulness to them both, and other indifferent subjects, when Boldwood said suddenly and simply—

"Mrs. Troy, you will marry again some day?"

This point-blank query unmistakably confused her, and it was not till a minute or more had elapsed that she said, "I have not seriously thought of any such subject."

"I quite understand that. Yet your late husband has been dead nearly one year, and—"

"You forget that his death was never absolutely proved, and so I suppose I am not legally a widow," she said, catching at the straw of escape that the fact afforded.

"Not absolutely proved, perhaps, but it was proved circumstantially. A man saw him drowning, too. No reasonable person has any doubt of his death; nor have you, ma'am, I should imagine."

"I have none now, or I should have acted differently," she said, gently. "I certainly, at first, had a strange unaccountable feeling that he could not have perished, but I have been able to explain that in several ways since. But though I am fully persuaded that I shall see him no more, I am far from thinking of marriage with another. I should be very contemptible to indulge in such a thought."

They were silent now awhile, and having struck into an unfrequented track across a common, the creaks of Boldwood's saddle and her gig springs were all the sounds to be heard. Boldwood ended the pause.

"Do you remember when I carried you fainting in my arms into the Three Choughs, in Casterbridge? Every dog has his day: that was mine."

"I know—I know it all," she said hurriedly.

"I, for one, shall never cease regretting that events so fell out as to deny you to me."

"I, too, am very sorry," she said, and then checked herself. "I mean, you know, I am sorry you thought I—"

"I have always this dreary pleasure in thinking over those past times with you—that I was something to you before *he* was anything, and that you belonged *almost* to me. But, of course, that's nothing. You never liked me."

"I did; and respected you, too."

"Do you now?"

"Yes."

"Which?"

"How do you mean which?"

"Do you like me, or do you respect me?"

"I don't know—at least, I cannot tell you. It is difficult for a woman to define her feelings in language which is chiefly made by men to express theirs. My treatment of you was thoughtless, inexcusable, wicked. I shall eternally re-

gret it. If there had been anything I could have done to make amends I would most gladly have done it—there was nothing on earth I so longed to do as to repair the error. But that was not possible."

"Don't blame yourself—you were not so far in the wrong as you suppose. Bathsheba, suppose you had real complete proof that you are what, in fact, you are—a widow—would you repair the old wrong to me by marrying me?"

"I cannot say. I shouldn't yet, at any rate."

"But you might at some future time of your life?"

"O yes, I might at some time."

"Well, then, do you know that without further proof of any kind you may marry again in about six years from the present—subject to nobody's objection or blame?"

"O yes," she said, quickly, "I know all that. But don't talk of it—seven or six years—where may we all be by that time?"

"They will soon glide by, and it will seem an astonishingly short time to look back upon when they are past—much less than to look forward to now."

"Yes, yes; I have found that in my own experience."

"Now, listen once more," Boldwood pleaded. "If I wait that time, will you marry me? You own that you owe me amends—let that be your way of making them."

"But, Mr. Boldwood—six years—"

"Do you want to be the wife of any other man?"

"No indeed! I mean, that I don't like to talk about this matter now. Perhaps it is not proper, and I ought not to allow it. Let us drop it for the present, please do!"

"Of course, I'll drop the subject if you wish. But propriety has nothing to do with reasons. I am a middle-aged man, willing to protect you for the remainder of our lives. On your side at least there is no passion or blamable haste—on mine, perhaps, there is. But I can't help seeing that if you choose from a feeling of pity, and, as you say, a wish to make amends, to make a bargain with me for a far-ahead time—an agreement which will set all things right and make me happy, late though it may be—there is no fault

to be found with you as a woman. Hadn't I the first place beside you? Haven't you been almost mine once already? Surely you can say to me as much as this, you will have me back again should circumstances permit? Now, pray speak! O Bathsheba, promise—it is only a little promise—that if you marry again, you will marry me!"

His tone was so excited that she almost feared him at this moment, even whilst she sympathized. It was a simple physical fear—the weak of the strong; there was no emotional aversion or inner repugnance. She said, with some distress in her voice, for she remembered vividly his outburst on the Yalbury Road, and shrank from a repetition of his anger:

"I will never marry another man whilst you wish me to be your wife, whatever comes—but to say more—you have taken me so by surprise—"

"But let it stand in these simple words—that in six years' time you will be my wife? Unexpected accidents we'll not mention, because those, of course, must be given way to. Now this time I know you will keep your word."

"That's why I hesitate to give it."

"But do give it! Remember the past, and be kind."

She breathed; and then said mournfully: "O what shall I do? I don't love you, and I much fear that I never shall love you as much as a woman ought to love a husband. If you, sir, know that, and I can yet give you happiness by a mere promise without feeling, and just in friendliness, to marry at the end of six years, it is a great honor to me. And if you value such an act of friendship from a woman who doesn't esteem herself as she did, and has little love left, why I—I will—"

"Promise!"

"—Consider, if I cannot promise soon."

"But soon is perhaps never?"

"O no, it is not. I mean soon. Christmas, we'll say."

"Christmas!" He said nothing further till he added: "Well, I'll say no more to you about it till that time."

Bathsheba was in a very peculiar state of mind, which showed how entirely the soul is the slave of the body, the ethereal spirit dependent for its quality upon the tangible flesh and blood. It is hardly too

much to say that she felt coerced by a force stronger than her own will not only into the act of promising upon this singularly remote and vague matter, but into the emotion of fancying that she ought to promise. When the weeks intervening between the night of this conversation and Christmas day began perceptibly to diminish, her anxiety and perplexity increased.

One day she was led by an accident into an oddly confidential dialogue with Gabriel about her difficulty. It afforded her a little relief—of a dull and cheerless kind. They were auditing accounts, and something occurred in the course of their labors which led Oak to say, speaking of Boldwood, "He'll never forget you, ma'am, never."

Then out came her trouble before she was aware; and she told him how she had again got into the toils; what Boldwood had asked her, and how he was expecting her assent. "The most mournful reason of all for my agreeing to it," she said sadly, "and the true reason why I think to do so for good or for evil is this—it is a thing I have not breathed to a living soul as yet—I believe that if I don't give my word, he'll go out of his mind."

"Really, do ye?" said Gabriel, gravely.

"I believe this," she continued, with reckless frankness; "and Heaven knows I say it in a spirit the very reverse of vain, for I am grieved and troubled to my soul about it—I believe I hold that man's future in my hand. His career depends entirely upon my treatment of him. O Gabriel, I tremble at my responsibility, for it is terrible!"

"Well, I think this much, ma'am, as I told you years ago," said Oak, "that his life is a total blank whenever he isn't hoping for you; but I can't suppose—I hope that nothing so dreadful hangs on to it as you fancy. His natural manner has always been dark and strange, you know. But since the case is so sad and odd-like, why don't ye give the conditional promise? I think I would."

"But is it right? Some rash acts of my past life have taught me that a watched woman must have very much circumspection to retain only a very little credit, and I do want and long to be discreet in this! And six years—why, we may all be in our graves by that time. Indeed the long time and the uncertainty of the whole

thing give a sort of absurdity to the scheme. Now, isn't it preposterous, Gabriel? However he came to dream of it, I cannot think. But is it wrong? You know—you are older than I."

"Eight years, ma'am."

"Yes, eight years—and is it wrong?"

"Perhaps it would be an uncommon agreement for a man and woman to make: I don't see anything really wrong about it," said Oak slowly. "In fact, the very thing that makes it doubtful if you ought to marry en under any condition, that is, your not caring about him—for I may suppose—"

"Yes, you may suppose that love is wanting," she said shortly. "Love is an utterly bygone, sorry, worn-out, miserable thing with me—for him or anyone else."

"Well, your want of love seems to me the one thing that takes away harm from such an agreement with him. If wild heat had to do wi' it, making ye long to overcome the awkwardness about your husband's death, it might be wrong; but a cold-hearted agreement to oblige a man seems different, somehow. The real sin, ma'am, in my mind, lies in thinking of ever wedding with a man you don't love honest and true."

"That I am willing to pay the penalty of," said Bathsheba, firmly. "You know, Gabriel, this is what I cannot get off my conscience—that I once seriously injured him in sheer idleness. If I had never played a trick upon him he would never have wanted to marry me. O! if I could only pay some heavy damages in money to him for the harm I did, and so get the sin off my soul that way! . . . Well, there's the debt, which can only be discharged in one way, and I believe I am bound to do it if it honestly lies in my power, without any consideration of my own future at all. When a rake gambles away his expectations, the fact that it is an inconvenient debt doesn't make him the less liable. I've been a rake, and the single point I ask you is, considering that my own scruples, and the fact that in the eye of the law my husband is only missing, will keep any man from marrying me until seven years have passed—am I free to entertain such an idea, even though 'tis a sort of penance—for it will be that? I hate the act of marriage under such circumstances, and the class of women I should seem to belong to by doing it!"

"It seems to me that all depends upon where you think, as everybody else does, that your husband is dead."

"Yes—I've long ceased to doubt that. I well know what would have brought him back long before this time if he had lived."

"Well, then, in a religious sense you must be as free to think o' marrying again as any other widow of one year's standing. But why don't ye ask Mr. Thirdly's advice on how to treat Mr. Boldwood?"

"No. When I want a broad-minded opinion for general enlightenment, distinct from special advice, I never go to a man who deals in the subject professionally. So I like the parson's opinion on law, the lawyer's on doctoring, the doctor's on business, and my business-man's—that is, yours—on morals."

"And on love—"

"My own."

"I'm afraid there's a hitch in that argument," said Oak, with a grave smile.

She did not reply at once, and then saying "Good evening, Mr. Oak," went away.

She had spoken frankly, and neither asked nor expected any reply from Gabriel more satisfactory than that she had obtained. Yet in the centremost parts of her complicated heart there existed at this minute a little pang of disappointment, for a reason she would not allow herself to recognise. Oak had not once wished her free that he might marry her himself—had not once said, "I could wait for you as well as he." That was the insect sting. Not that she would have listened to any such hypothesis. Oh no—for wasn't she saying all the time that such thoughts of the future were improper, and wasn't Gabriel far too poor a man to speak sentiment to her? Yet he might have just hinted about that old love of his, and asked in a playful offhand way, if he might speak of it. It would have seemed pretty and sweet, if no more; and then she would have shown how kind and inoffensive a woman's "No" can sometimes be. But to give such cool advice—the very advice she had asked for—it ruffled our heroine all the afternoon.

CLASSIFICATION OF COMETS.

BY RICHARD A. PROCTOR, B.A., F.R.S.

SOME of the facts of science are stranger than any fictions which even the liveliest imagination could devise. So strange are they that even the student of science who has been engaged in the work of mastering them is scarcely willing to admit them in their full significance, or to accept all the inferences which are directly or indirectly deducible from them. This, true in all departments of science, is especially noteworthy in astronomy; and perhaps there is no branch in astronomy in which it is more strikingly seen than in that which relates to comets. During the last quarter of a century discoveries of the most surprising nature have been made respecting these mysterious bodies; relations have been revealed which bring them into association with other objects once regarded as of a totally different nature, and the path seems opened towards results yet more amazing, by which, more than by any others which even astronomy has disclosed, we seem brought into the presence of infinite space and infinite time.

The earth on which we live—nay, our solar system itself—seems reduced to utter insignificance compared with the tremendous dimensions of comet-traversed space; while all the eras of history, and even those which measure our earth's existence, seem as mere seconds compared with the awful time-intervals to which we are introduced by the study of cometical phenomena.

One of the most interesting points suggested by the recent cometical discoveries is the question, how comets are to be classified. That they are not all of the same order is manifest, whether we consider their size, or the shape and extent of their orbits. But precisely as in zoological classification mere size or development is considered a much less important point than some really characteristic difference of structure, or even than a difference of distribution, so in classifying comets it would be unsatisfactory in the extreme could we have no more characteristic difference to deal with than that of di-

mensions. Supposing, for instance, that we could separate comets into those with or without a nucleus, or those with or without a tail; such a classification, if it was found to correspond with a real difference of nature, would be much more satisfactory than the arrangement of comets into various orders differing only in size. One of the most interesting questions, then, in the cometic astronomy of a few years ago was this—Are the peculiarities just referred to—the absence or presence of a nucleus, or of a tail—really characteristic, or do they correspond to mere differences of development? I say that this question belonged to cometic astronomy of a few years ago, though even then there were reasons for regarding the various forms of structure observed in comets as depending only on development. Of course comets which, during the whole time of their visibility, showed neither tail nor well-defined nucleus, could afford no means of answering the question. But a comet like Donati's—the glorious plumed comet of 1858—which appeared as a mere globular haze of light, and gradually during its approach to the sun assumed one form after another of cometic adornment—the nucleus, the fan-shaped expansion, the long curved tail, striations within the tail and envelopes outside the fan, while finally even subsidiary tails made their appearance—teaches us unmistakably that these features depend merely on development. We might as reasonably place the chicken in another class than the full-grown fowl because it has neither comb nor colored tail-feathers, as set a small comet in another order than that to which Donati's belongs because the small one shows neither tail nor coma. The gradual loss of these appendages by Donati's comet, during its retreat into outer space, of course strengthens this view. But perhaps the most remarkable proof ever afforded of the variety of appearance which the same comet may present, was that given by Halley's comet at its return in 1835-36; for on that occasion, after showing a fine coma and tail during its approach towards the sun, it was seen in the southern hemisphere by Herschel and Maclear, not only without tail, but even without coma, appearing in fact precisely like a star of the second magnitude. After this—that is to say, during its retreat—it gradually resumed its coma, and even seemed to be throwing out a

new tail, but no complete tail was formed while the comet remained visible.

Indeed the difference between the appearance presented by the same comet before and after its nearest approach to the sun is not only remarkable in itself, but subject to remarkable variations. "What is very remarkable," says Sir John Herschel on the first point, "the shape and size are usually totally different after the comet's reappearance (on the other side of the sun) from what they were before its disappearance. Some," he remarks on the second point, "like those which appeared in 1858 and 1861, without altogether disappearing as if swallowed up by the sun, after attaining a certain maximum or climax of splendor and size, die away, and at the same time move southward, and are seen in the southern hemisphere, the faded remnants of a brighter and more glorious existence of which we here witnessed the grandest display; and on the other hand we here receive as it were many comets from the southern sky, whose greatest display the inhabitants of the southern parts of the earth only have witnessed. It also very often happens that a comet, which before its disappearance in the sun's rays was but a feeble and insignificant object, reappears magnified and glorified, throwing out an immense tail, and exhibiting every symptom of violent excitement, as if set on fire by a near approach to the source of light and heat. Such was the case with the great comet of 1680, and that of 1843, both of which, as I shall presently take occasion to explain, really did approach extremely near to the body of the sun, and must have undergone a very violent heat. Other comets, furnished with beautiful and conspicuous tails before their immersion in the sun's rays, at their reappearance are seen stripped of that appendage, and altogether so very different, that but for a knowledge of their courses it would be quite impossible to identify them as the same bodies. Some, on the other hand, which have escaped notice altogether in their approach to the sun, burst upon us at once in the plenitude of their splendor, quite unexpectedly, as did that of the year 1861."

It was clear, then, long since, that comets cannot be classified either according to their size or their development. But this has been even more conclusively shown by the spectroscopic analysis of large

and small comets. For certain bright bands seen in the spectra of the small comets which had been examined before the present year, are found also to characterize the spectrum of the comets which adorned our northern skies last June and July, and to be shown not only by the coma, but also by the tail. I do not here enter into any special consideration of the results of spectroscopic analysis as applied to this comet, because to say truth our spectroscopists have not met with any noteworthy success; and we must wait till the spectroscopists of the southern hemisphere have sent in their statements before we can determine whether any special accession has been made to our knowledge. It may, however, be assumed from what has been observed here, that the characteristic spectrum of comets, large and small, is that three-band spectrum which was first recognized during the spectroscopic investigation of Tempel's small comet in the year 1866.

Comets, then, must be classified in some other way. It is not difficult to select the proper method of classification—a method not only satisfactory as respects the distinctions on which it depends, but exceedingly suggestive (as, in fact, every just mode of classification may be expected to be).

I would divide comets into three classes, according to the nature of their paths.

First, there are the comets which have paths so moderate in extent that their periods of revolution belong to the same order as the periods in which the planets revolve around the sun. This class includes all the comets which have been described as Jupiter's comet-family, and all those similarly related to Saturn, to Uranus and to Neptune. Other comets of somewhat greater period than Neptune's comet-family may perhaps be regarded as associated with as yet undiscovered planets revolving outside the path of Neptune, and therefore as belonging to the same family. I would not, however, attempt to define very narrowly the boundary of the various classes into which comets may be divided, and in what follows I shall limit my remarks to comets which are clearly members of one or other class, leaving out of consideration those respecting which (for want, perhaps, of more complete information than we at present possess) we may feel doubtful.

Secondly, there are comets of long periods, but which yet show unmistakably, by their motions, that they are in reality members of the solar system—such, for instance, as Donati's comet, which may be expected to return to the sun's neighborhood in the course of about two thousand years.

Lastly, there are the comets whose motions indicate a path not re-entering into itself. These are of two orders: those which retreat from the sun on a path tending with continual increase of distance to become more and more nearly parallel to the path by which they had approached him; and those whose retreating path carries them divergingly away so that they retreat towards a different part of the heavens than that from which they arrived. Technically, the two orders are those of comets pursuing (i.) parabolic and (ii.) hyperbolic paths. In reality, however, we may dismiss the parabolic path as never actually followed by any comet, any more than a truly circular path is ever actually followed by any planet. We may take it for granted that any comet which seems to follow a parabolic path really follows either an enormously elongated oval path, and so belongs to our second class; or a path carrying it forever away into outer space, and *nearly* in the direction from which it had arrived, but not *exactly*. A comet's path could only have the true parabolic form by a perfect marvel of coincidence; and in point of fact if a comet could by some amazing chance approach our sun on such a path, the very least of the multitudinous disturbing attractions to which the comet would be exposed would suffice to change the path either to the elliptic or the hyperbolic form.

And here we may pause to inquire how far the second of the three classes into which comets have thus been divided can be regarded as a class apart. Does the mere fact that a comet has a re-entering path—so that, unless perturbations affect it, the comet will travel in continual dependence on our sun—afford a sufficient reason for distinguishing the comet from others which travel on a hyperbolic path? It appears to me that this question admits of being answered in two ways. When we remember that a comet approaching our system on a slightly hyperbolic path might have that path changed into an elliptic figure by the perturbations to which

the comet would be subjected during its visit, we may reasonably decide that the mere fact of a comet pursuing an elliptic path ought not to be considered a valid reason for distinguishing it from one of the hyperbolic comets. But when we consider, on the other hand, that there are comets like those of Jupiter's family, which are quite distinctly separated by the nature of their paths from the hyperbolic comets, we may not unreasonably infer that some at least of those which travel on elliptic paths of great eccentricity are in reality to be classified apart from the hyperbolic comets, as having had a different origin and a different history. We might, indeed, reverse the argument just adduced, and reason that the hyperbolic comets ought not to be classified apart from the comets of long period, because perturbations excited within the solar system might change an elongated elliptic orbit into a hyperbolic one. The point at issue is thus seen to resolve itself into the question whether we can assert that there are comets which from the earliest times (the youth of the solar system) have belonged to it (i.) with short periods and (ii.) with long periods, while (iii.) other comets have visited it from other systems. We find in fact that the attempt to classify leads in this case, as it has led in so many others (as perhaps it inevitably must lead, if properly conducted), to the question of origin.

And here perhaps the question will arise, may we not cut the Gordian knot by denying that even the comets of short period can be separated from the hyperbolic comets which visit our system from interstellar space? I am aware that the theory of comets and meteors which Schiaparelli has advanced, and which many in this country have viewed with considerable favor, points to this conclusion. For according to that theory meteor-systems are groups of discrete bodies which have been drawn towards our solar system, gradually lengthening out as the process of draught continued, and have then been compelled by the perturbations to which they have been subjected within our system, to become members of it; and as comets and meteor-systems have been found to be associated together in some mysterious way, this theory of the introduction of meteor-systems is in reality a theory of comets. Now since some cer-

tainly among the meteor-systems have periods of moderate length, this theory of Schiaparelli's would regard the short-period comets as drawn out of the interstellar depths, while manifestly it would be absurd not to extend Schiaparelli's theory to hyperbolic comets. In fact, we know that he himself regards his theory as requiring the occasional appearance of meteors of hyperbolic path, and therefore as not merely consistent with the phenomena of hyperbolic comets, but accounting for them. Adopting his theory, then, to its fullest extent, we should regard all comets and meteors as bodies coming from the interstellar depth; for it is not easy to see how any comet or meteor-system could be so far distinguished from its fellows as to be regarded as originally a member of the solar system.

But for reasons which appear to me in controvertible, I find it impossible to give in my adhesion to Schiaparelli's views, in the form in which he presented them. A line ought to be carefully drawn between what has been proved and what has not been proved respecting the opinions which Schiaparelli has advanced. His most happy conception, that meteors would be found to travel in the paths of comets, has been realized, and no possible question can be raised as to the completeness of the demonstration; but it is quite otherwise with his supposition respecting the manner in which meteoric systems or comets have been introduced into the solar system. It not only has not been proved that comets have been compelled by the perturbations of the planets to become permanent members of the solar system, but grave doubts rest on the bare possibility of such an event occurring.

Let it be remembered that the conditions of the problem are purely dynamical. We know that the comet's head obeys the laws of gravity, and whatever peculiarities may affect the motions of the matter of comets' tails are not by any means such as would help to render easier the captures conceived by Schiaparelli. Confining ourselves then to gravity, we can determine readily in what way a comet might be captured. Take the case of a particle travelling towards our solar system from out the interstellar depths under the influence of the sun's attraction. Such a particle may be regarded as practically approaching the sun

from an infinite distance, and we know its velocity at given distances from the sun. Thus, when at the distance of Neptune its velocity would be 4.7 miles per second; at the distance of Uranus, 5.9 miles per second; of Saturn, 8.3 miles; of Jupiter, 11.3 miles; of the asteroids, from 15 to 16 miles per second; and the velocity in crossing the distances of Mars, the Earth, Venus, and Mercury, would be 20.8 miles, 25.9, 30.3, and 41.4 miles per second respectively. Now we know that the greatest velocity which any given planet can communicate to a body approaching it under its sole influence from interstellar space is very much less than the velocity which such planet can communicate to a body approaching it under the sun's influence in addition to its own, for the communication of velocity to a moving body is a process requiring time, and in the latter of the two cases just considered the body is for a much smaller time under the influence of the planet. And the velocity which a planet can communicate under any circumstances represents the velocity which, under similar circumstances, the planet can withdraw from a moving body. So that Jupiter, Saturn, Uranus, and Neptune, are severally unable to deprive a particle which, drawn in by the sun's attraction, passes near to them, of more than a portion of the velocity which these planets are respectively able to communicate to a body approaching them from infinite space. Taking, for example, the case of Jupiter, we may regard 40 miles per second as a sort of negative fund from which Jupiter would have the power of drawing, to reduce the velocity of bodies moving from him, if Jupiter were the sole attracting influence under which such bodies had acquired their velocity; but in the case of bodies which have been drawn inwards by the sun's attraction, the fund is reduced to about 30.3 miles per second. Now this might seem ample when we remember that the velocity of a body crossing the path of Jupiter under the sun's influence alone would be but 11.3 miles per second. But it is to be observed that the estimate only applies to bodies moving all but directly from Jupiter, and coming all but into contact with his surface. The power of Jupiter in this respect diminishes rapidly with distance from the surface. At a distance from Jupiter's centre equal to

four times his radius, his power is already diminished one-half, and this distance is far within that of even his nearest satellite. Moreover, it is to be noticed that a body which moves in such sort that Jupiter exerts his most powerful retardative influence, must have moved for some time previously in such a way that Jupiter exerted nearly his most powerful accelerative influence.* It may be readily shown to be impossible for Jupiter to withdraw much more velocity than he had already communicated; and similar remarks apply, of course, to Saturn, Uranus, and Neptune.

The application of these considerations to Schiaparelli's theory is easily perceived. In order that a particle attracted from outer space may be compelled to travel in a closed orbit around the sun, its velocity must be diminished. And this can very readily happen. But for the particle to travel in an orbit of a particular extent or mean distance, its velocity where it crosses the distance of the disturbing planet must be diminished by a certain amount; and in dealing with Schiaparelli's theory, it is a cardinal consideration whether the observed orbits of periodic comets are such that we can admit the possibility of their resulting from any diminution of velocity which the disturbing planet could have produced. Taking, for instance, the November meteors, which pass near the orbits of Uranus and the earth, and do not approach any other orbit near enough for any such effects upon the orbital motions of these bodies as we are now dealing with.† We may

* It is manifest that a particle in approaching from without must be, in the first instance, accelerated by any planet to which it draws near, no matter what the direction may be in which the particle arrives. It may begin to be retarded, however, before it has reached the distance from the sun at which the disturbing planet is travelling. In any discussion of the change of path as to position, we should need to inquire very carefully into the manner of approach; but in the above discussion we are only inquiring into the change of velocity.

† Both Jupiter and Saturn can perturb the November meteors, and thus modify the shape and position of the meteoric orbits; but such changes, though by no means inappreciable, are utterly insignificant compared with those required to change the motion of a body approaching the sun from interstellar space into motion in an orbit like that of the November meteors.

dismiss the earth from consideration at once, because our planet is far too small to modify the motions of bodies rushing past her with the velocity, nearly 26 miles per second, which the sun communicates to bodies approaching him from interstellar space, by the time they reach the earth's distance from him. Uranus then alone remains. Now the present velocity of the November meteors when crossing the orbit of Uranus amounts to about $1\frac{1}{2}$ miles per second. The velocity of a particle approaching the sun from interstellar space would be nearly 6 miles per second when at the distance of Uranus. It may be seriously questioned, whether, under any circumstances whatever, a particle crossing the track of Uranus without encountering the planet could be deprived of $4\frac{1}{2}$ miles per second of its velocity. For though Uranus can deprive a body directly receding from him (and starting from his surface) of a velocity of about 13 miles per second, yet the considerations above adduced show that only a fraction of this velocity could be abstracted from a body moving past Uranus; and it is certain that if so large a reduction as $4\frac{1}{2}$ miles per second could be effected at all, it would only be by a singularly close approach of the particle to the surface of Uranus.

But setting apart the improbability that a body arising from interstellar space could be in this way compelled to travel in the orbit of the November meteors, the possibility of such a capture would not prove the possibility of the capture of a flight of bodies large enough to form that meteor system and its accompanying comet. If the whole material of the system and its comet had arrived in a compact body, the material attractions of the parts of that body would be sufficient to keep them together; whereas, in point of fact, the November meteor system and its comet occupy at present a large range of space, even if the meteors be not scattered all round the orbit (however thinly along portions thereof). If, on the other hand, the material of the body were not in a compact form, the body would be necessarily large, and a portion of it only would be captured by Uranus. Nay, it is not even necessary that this should be conceded. For though we admitted that the whole of a large and tenuous body not kept together by the mutual attraction of its parts or by

cohesion, might be captured, it is manifest that different parts would be captured in different ways, and would thenceforth travel on widely different orbits. That a system of bodies already drawn out into an extended column, and in respect of length already resembling the meteor systems we are acquainted with, could be captured, as Schiaparelli's theory requires, and all sent along one and the same closed orbit, is altogether impossible.

It is to be noticed also that we gain nothing, as respects the interpretation of comets, by adopting Schiaparelli's hypothesis. To assume that cometic matter has been wandering about through interstellar space, until the sun's attractive influence drew such matter towards the solar system, is to explain a difficulty away by advancing another still greater; moreover, we have not a particle of evidence in support of the supposition. To suppose, on the other hand, that comets have crossed the interstellar spaces, coming to us from the domain of another sun, is to remove the difficulty only one step. We know that comets pass away from the domain of our sun to visit some other sun after an interstellar journey of tremendous duration; and to suppose that comets, whether of hyperbolic or elliptic orbit, came to us originally from the domain of another sun, is merely to suppose that that happened to such comets millions of years ago which we know to be happening to other comets at this present day, but not by any means to explain the nature of comets or their origin. We know that many comets leaving our system to visit others had not their origin within our system; and we cannot assume as possible or even probable that any comet had its origin within the domain of another sun than ours, unless we assume as possible or probable that some among the comets leaving our own sun had their origin within our sun's domain.

Thus, then, we have been led to the conclusion that whether we adopt, with Schiaparelli and others, the theory that comets with meteoric systems can be drawn into the solar domain, or regard such an event as of very infrequent occurrence, we still find that the origin of comets must be looked for within solar systems; or rather, since we cannot claim to trace back comets any more than planets or suns, to their actual origin, we may say

that at an early period of their existence comets belonged to the solar system. The system has had no more occasion, so to speak, to borrow comets from other systems—that is, from other suns—than these have had to borrow comets from it and from each other.

We decide, then, that comets may certainly be classified into those which belong to our solar system from the earliest period of their history, those which visit it from without, and pass away to other suns, and an intermediate class consisting of those which having visited it from without have been constrained, by perturbations affecting them within it, to become attached permanently to its domain. We may note also that as there are comets now belonging to our solar system which originally belonged to other solar systems, so probably many comets originally belonging to our solar system are now either attending on other suns or wandering through the star-depths from sun to sun.

It has been from viewing the matter in this way, recognising the almost decisive evidence that comets have from earliest times been members of our solar system,

that I have been led to inquire into the possibility that some comets may have been expelled from the sun, and that others—those, namely, which seem attached to the orbits of the giant planets—may have been expelled from those planets when in their former sun-like condition. The evidence to show that there is an adequate expulsive power in the sun is striking, and we may reasonably infer that the small suns formerly dependent upon him had a similar power.

The motions of the members of the comet families of Jupiter, Saturn, Uranus, and Neptune, accord far better, too, with this theory than with Schiaparelli's.

It is to be noticed, however, in conclusion, that we may also not unreasonably admit the possibility that comets may be, as it were, the shreds and fragments left from the making of our solar system and of others, since the sun and planets in their former nebulous condition and expanded forms would have had a power of capturing these wandering shreds which at present they no longer possess.—*Popular Science Review*.

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“OLD LABELS.”

EVENTS have lately so shaped themselves in my life that it has become necessary for me to buy furniture, and materially increase my stock of goods and chattels. Among other things, my wardrobe has needed one or two alterations, and, having in view the possibility of no little travelling, I have thought it advisable to supply myself with a new outfit of portmanteaux, carpet bags, and trunks. Mine were indeed old. But by far the oldest of the things of the kind in my possession was a dilapidated hat-box which I had owned for many a year, and which had followed me in many a wandering. It was assuredly past work; its edges were worn through, its cover was split in one or two places, and in every part it showed signs of long use and some rough handling. It was an old companion, and before handing it over finally to my servant to be sold as old leather, I amused myself by tearing off the various labels which in whole or part still remained on its weather-beaten back and sides.

How many associations they recall!

How many feelings of days long gone by force themselves into my mind as I read the names of the places where those feelings first had being, or were most strong! Phases of life forever past; hopes and fears the folly of which is now so apparent; memories of friends no longer friendly, or of acquaintances once in perpetual intercourse, but now far removed from my ken; all these are brought before me as vividly as if they still were, and it seems as though the past and I were united once more.

Peeping out here and there, or buried amid a superimposed pile of others, are fragments such as Ox . . . Oxf . . for . . rd . . . What a happy life they bring back! The freshman's term, when all was new and strange, when tradesmen solicited custom and not money, when attendance at chapel and college lectures seemed the thing which would commend itself to every well-ordered mind, when an invitation to wine seemed the height of social felicity, when dinners in hall were eaten regularly and without complaint, when the tutors

appeared models of wisdom and good manners, and their instruction the essence of education, when the 'Varsity eleven, or the 'Varsity eight, seemed heroes of almost another world, and a canoe down to Iffley, or half-an-hour's practice on the Magdalen was as much as one's studious habits would allow. And then the second year—the year perhaps in one's life which one would most readily select to live over again, were it not for the stern rule,

"Non tamen irritum
Quodcumque retro est efficiet, neque
Diffinget insectumque reddet
Quod fugiens semel hora vexit."

The year in which there is more enjoyment perhaps than is possible in any other time of life, in which "the blossom of the flying terms" is sweetest, in which, in a word, the one sole drawback to happiness is the near approach of "Mods." Oh, that second year at Oxford, how many others is it not worth? New friendships are in their full flush; new pleasures are found out, but not become stale; the strength of manhood has arrived, its stern necessities are still to come. The dons are still friendly, tradesmen are still indulgent, the wished-for place in the eleven or the eight is perhaps attained, and the firm determination to beat "those Cambridge devils," lends zest to practice and pleasure to self-denial. Every pleasure is in full swing, and every week passes as it were a day. Who would not be back again at Oxford who has once drunk of its intoxicating joys? The summer days at Bullingdon, with the races on the wearied old hacks, the hard-fought matches on the Magdalen, or determined spurts from the "Gut," the cheery evenings of talk on literature or politics, when dogmas were laid down with the full authority of inexperience, and when no debater ever considered the possibility of a question having two sides, or of there being any exception to the general rule so boldly propounded. Then the winter mornings—hunting breakfasts, covert hacks to Lord Macclesfield's opening meets, or Tolley's best screws for a day with the Christ Church harriers. Then the whist parties at Merton, the literary dinners at Balliol, the snipe shootings with fellows of Magdalen, the balls at Woodstock, the rubbers at racquets, the games of pool after club wines, the cosy *tête-à-têtes* with a bosom friend, or the pleasant gatherings

of three or four to crack a bottle of claret after hall; the forbidden dinners at the Mitre, where the dreaded apparition of a proctor was so imminent, and where the shrill voice of "Snipes" was so often heard ordering champagne cup for number four. Is there anything like such a life? Is the capacity for enjoyment ever so keen? Do troubles ever seem so light, difficulties ever cause less anxiety?

Then the third year, with "Greats" impending like the sword of Damocles over one's head, with the problem of life coming nearer, with duns growing clamorous and dons more exacting, with its losses by friends going down and cherished coteries being broken up, and finally with its desperate excitement of the schools, and the stormy interview with "the governor." And then a visit to Oxford for the last time, when in the view of shouting freshmen you put on your master's gown and look to see whether your whiskers are not grey.

They are numerous and bright recollections that are brought back to me by these innermost labels of my hat-box.

Genève, tightly fastened on, and near another ticket on which the letters *de l'Éc* are just legible. *Hôtel de l'Écu, Genève*; that was at the end of my second year. We went for a reading party to Switzerland, four of us. A reading party, save the mark! Two were mad for walking, and thought nothing compatible with Anglicism save mounting the ruggedest peaks and chilliest glaciers they could find; two were fishermen, and ferreted out the most likely rivers within miles of Geneva. One made desperate efforts to learn the language, but without success. "Donnez-moi de poison," he said, on one occasion to the astonished waiter; and on another "Je suis femme." But we did but little reading, and owed to our work in the coming term the little satisfaction which we gave to the Moderators. Still, we enjoyed ourselves, and did ourselves good. What glorious swims in the clear blue waters of the Rhine; what expeditions to Chillon, Ouchy, and Vevay; what rambles through the valleys of the Brevent range; and what laborious climbs up the Buet, and the *Col d'Anterne*! I shall never forget one bathe we had. We had had a plunge in the lake of Geneva in the morning, the warm water of which was delightful, and in the afternoon we had a

hot and dusty walk. Towards six we arrived at a little village in the mountains, near to which was a small lake, into which we all of us fancied a header. Edwards, a somewhat timorous specimen, and a poor swimmer, was the first in his birthday clothes, and, pleased with his haste, plunged into the lake with unhesitating confidence. His face, on coming to the surface, was a caution. He gasped and panted like a chased hare, and made for the bank with an expression of terror. "What on earth is the matter?" "Ah! ah! ah!—it's like ice." And so it was. Ten strokes endangered cramp, and not one of us could swim across the lake. Why the water was so cold we never could fathom, but neither could we the lake itself, so perhaps its depth had something to do with it. A river close by was many degrees warmer, even when flooded with snow water.

Roberts, one of the fishermen of our party, distinguished himself shortly afterwards. He made the acquaintance of a Swiss pasteur, and tried to impress him with the attractions of a trout stream. His reverence listened attentively to all that Roberts said, and on one occasion went so far as to accompany him up the river. Roberts, however, was rather disgusted at a way he had of picking up stones and throwing them into all the most likely pools, saying, "Jetez la mouche là—voilà un bon endroit." After much argument, Roberts persuaded him that such a course was not likely to conduce to sport. Shortly afterwards the parson had his revenge, for Roberts, who was a stout, unwieldy little chap, much given to puffing at a huge meerschaum, saw a large trout rising at the opposite side of a broad pool, just about the end of his reach. He was extremely desirous of showing his skill, as well as of annexing the trout, and he made a series of violent efforts which culminated in his throwing his rod, his pipe, and himself into the water.

He was very angry at me for laughing, and still more vexed because the pasteur said he did not think much of "la pêche." Indeed, we had to subscribe to give him a new pipe, or I believe he would always have allowed the episode to rankle in his mind.

I went on several reading parties while at Oxford, but none which was so varied in its enjoyments as an expedition to

Switzerland. Once some of us went to Beddgelert—a corner of the Carnarvon label is still on my hat-box—and enjoyed heartily three weeks of delicious spring weather. We began badly, for, to our shame be it said, we arrived late on a Saturday evening, and spent the afternoon of the following day on the banks of the river tickling trout. The parson of the place, in consequence of this, proposed himself to bread-and-cheese and beer, and during the simple meal expatiated on the enormity of our offence, saying that it did not much matter what we did provided we did not go fishing on Sunday. We promised compliance, but we rather resented the good gentleman's reproof. I am sorry to say also that we retaliated most basely. For shortly afterwards we discovered that the reverend gentleman was greatly given to meteorology and weather reports. He kept a rain-gauge, we ascertained, and sent every week reports of his investigations as to the rainfall of the district. Barbarously mischievous, we bribed a little boy to pour half-a-tumblerful of water into the rain-gauge every morning, in consequence of which, long before the end of our stay, the parson was amazed at the difference between the rainfall of the village as published from his reports, and his own experience of the weather. I am not quite sure whether he ever discovered the trick, but Roberts, who was the leader of the malevolence, said he was rather cool to him at a subsequent meeting.

Little Roberts was always putting his foot into it with the parsons. On one occasion we persuaded him to go to an afternoon service with us, after a luncheon in which he had given full play to his Sunday appetite. The result was that he went to sleep during the sermon. In the middle of his snooze he dropped his Prayer-Book, and said, but not loudly, "Come in." The opportunity was too good to be missed, so after a moment's pause I rapped with my umbrella on the desk in front of Roberts's nodding head. The bait took. To the amazement of the congregation, and the indignation of the eloquent preacher, who was interrupted in one of his most effective periods, Roberts started up and exclaimed at the top of his voice, "Come in, confound you! I told you so before."

Various labels of Euston, Paddington,

and Waterloo. Let everything be said against it that can be, there is after all no place like London for a permanency. Where such an exchange of ideas? Where such brightening up and polish of intellect? Where such thought and easy removal of the rust which will accumulate over the clearest mind, and dim the reflection of even the most shining reason? How it varies! Before Easter, with Parliament in the full strength of spring youth, with enough people to make society, and enough "things" to please all but a social glutton. When friends are dropping in one by one, and every day a new face is seen, and new information given and received. And then the season. A perpetual and interminable "go." Parties, dinners, visits, business. Business, visits, dinners, parties. A looking-glass crammed with cards—"At homes," "Requests the pleasure," "Is commanded to invite." Dances, teas, dinners, breakfasts. One incessant fidget from Monday to Saturday, till long ere August one is hot and wearied and satiated. The Derby week with its influx of heavy moustaches, tanned faces, and trim whiskers. Ascot with its gorgeousness of ladies' apparel, and its far more legitimate racing. Last, blissful sign of welcome release, Goodwood, with its stately scenery and far quieter crowd. And then London in November, like a restless torrent, subsided into a tranquil stream. When the few friends who are there are glad to see you, and do see you. When, if you dine out, you spend a cosy, comfortable evening, broken by no necessity of bolting away to Lady A's dinner, or Mrs. B's ball. When you have merry parties at the play, or intellectual gatherings of the clever, the odd, or the witty, to spend the long winter evenings in real enjoyment of one another's society, and not in hurried and spasmodic conversation. In the season there is no pause, no stay. Ere you have even tasted one sweet you are driven on to another. In November you have leisure to do as you will. There is none of the high pressure which in these days seems the characteristic of all combined life. For pleasure, for business, for society, London in November is far preferable to the giddy, turbulent, excited city of June and July.

Lastly, there is London at the only time when it is really hateful. From the second week in August till the third week in Sep-

tember. When those people who are there live in their back rooms, and when, if you meet a friend in the park, he or she looks upon you as if you were a wild man of the woods. When your club is being painted, when all the streets are up; when the opera is shut, and none of the good plays open; when your tailor is especially anxious about his little bill; when your cook wants a holiday, and you yourself have invitations by every post; when you meet day after day men coming from and going to every conceivable state of rural enjoyment; when De Winton tells you of his moor, Fitz Alpyne of his mountain feats; when your pretty cousin is at Lucerne, your idle brother on the Spey; when you know that delights are open to you in any of which you would revel luxuriously were it not that stern necessity chains you to the hot and dusty town. Assuredly is he to be pitied whose destiny keeps him in London when the grouse on a thousand hills are whirring away from their enemies' aim, or when the partridges are counting the hours that remain to them of life.

How the next label that I tear from my rusty hat-box changes the scene! Perth. What pleasant associations are immediately called up. Arrival in the early morning after a restless sleep, broken towards Carlisle by the jolting of the speeding train, or marred by dreams of rocky dangers or violent death. A ravenous rush to the room where a hot and hearty breakfast awaits the appetite, already stimulated by the northern air. A perpetual ringing of bells and incoming or exit of trains, from or to which pour kilted or knickerbockered athletes, with calves of every possible degree of muscularity. Unwilling dogs, dragged at by perplexed gillies, and vainly attempting to make friends with their kind, who are being lugged in an opposite direction. Gun-cases of all shapes and sizes, and rod-boxes or bundles of rods. Cheery inquiries of friends—who ever was at Perth in August without seeing some one he knew?—as to past or coming sport. Comparison of notes as to the grouse in various counties, or the hope of proper water in the Spey, the Tweed, the Spaan, or the Tay. Or the half-concealed exultation of some fortunate who has had the higher privilege of a forest, and who perchance has had a successful stalk of a "royal." Then how pleasant is the onward journey to the north—perchance through the Gate

of the Highlands by the night garry, past the wooded vale of Killiecrankie, and on toward Inverness, through the lonely moors, where your train frightens herds of grouse, whose flight makes your fingers itch for the trigger of your gun. Ay, those past days of August, what happy days were they!

Dublin. Of all places to arrive at, perchance the worst. The desolate wait at Kingstown whilst the steamer is being unladen. (Why will not the company, who have established the most perfect journey in existence, give the little finishing touch which is wanted, by having some system of more rapid unlading?) When your nostrils are still full of the steamer odor of oil and paint; when your head still owns to the rise and fall of the hateful waves, which have been "bounding beneath" you like anything but "a steed that knows its rider." When you are cold and hungry, and yet disinclined to be warm or eat. The ill-omened voice of the boy who cries out "Shmorn-ing's shmail, shmorn-ing's shnews, shmorn-ing's shtimes." The offensiveness of the young man who thinks it the right thing to light a cigar, but who evidently does not enjoy it. The pale faces of the dishevelled-looking ladies, whose sufferings have if possible been worse than your own. The slovenly railway carriages, and the slow, dismal journey along the coast to Dublin, ended by the unwelcomed arrival in a town which is but half awake, and not one quarter cleaned. All combine to make a coming to Dublin as chill and cheerless a performance as can well be conceived.

But Dublin brightens up on acquaintance. The chaff of the carmen is not all ideal, and good things are by no means few and far between. Talk to one, open his mouth, not by extra pay, but by a sign of interest in his welfare, by inquiries after his horse, his trade, his employment, and it will be odd if you are not rewarded by at least an occasional sparkle of that wit which is so thoroughly characteristic of Ould Ireland.

Were you ever in Dublin in the season? If so, you may have seen a society which in certain respects is unique. The "Viceraygal" lodge has immigrated to the castle, and all the rank, fashion, and beauty of the capital of the Emerald Isle are entertained week after week during the first

three months of the year by the Queen's representative. The dingy old rooms, so dismal and dirty in the autumn, are brightened up and painted. Trophies of modern arms, and specimens of older weapons, adorn the staircase, up which pass a crowd of uniformed men and fair ladies to St. Patrick's Hall, where the Viceroy holds what the Fenian newspapers delight in calling his "tinsel court," and dispenses a hospitality which few are not glad to share. Assuredly when the days come that shall know no viceroyalty—and the period of that anomalous office without doubt is drawing to a close—Dublin will be not a little the loser, unless indeed it so be that royalty accords to Ireland that amount of personal attention which England and Scotland have so long appreciated, and the men of Wicklow, Kerry, or Kildare have an opportunity of showing for a length of time that loyalty which has hitherto had but spasmodic and occasional outlets.

I see that my poor old hat-box has been with me to Killarney, and I think I shall keep the old label that records the visit as a reminiscence of indeed a pleasant time. To know the full value of lake life, go and spend a fortnight in August at Killarney. Avoid the conventional routes. Do not go through the Gap of Dunloe, which, though pretty, is much exaggerated. But wander over Ross Island, climb Mangeron, and descend round Glen-a-Copple. See Torc waterfall, if you will, and by all means row by Muckross and between the lakes, but rather follow your own bent, and with sketchbook in hand, wander about the wild woods, and admire to your heart's content the rich effects which the arbutes make on the rocky shores. Then what expeditions you may have in the cool soft evenings on the lake. When echo-men, with their detestable horns, are wearied of blowing their gamuts; when the wind has dropped, and "not a ripple stirs the tide;" when nothing breaks the silence save the sound of a rich, soft voice from the stern of your boat, or the full, round chorus of the boatmen as they sing "The Cruiskeen Lawn;" in a word, when you feel inclined to say, with the French poet of another lake—

"O temps, suspend ton vol, et vous heures
propices,
Suspendez votre cours;

*Laissez nous savourer les rapides délices
Du plus beau de nos jours.*

*"Assez de malheureux ici bas vous implorént
Coulez, coulez pour eux.
Prenez avec leurs jours les soins qui les devorent—
Oubliez les heureux.*

*"O lac, rochers muets, grotte, forêt obscur,
Vous que le temps épargne, ou qu'il peut rajeunir,
Gardez de ce beau jour, gardez belle nature,
Au moins le souvenir."*

It was once my fate to have a day's woc-cock shooting in some woods close by the lower lake, and for combination of scenery and sport I doubt if that day could be equalled. One wood in especial was on a high bank overlooking the lake, on which a winter sun was shining with all its frosty brilliance.

*"Frost in the air till every spray
Stands diamond set with rime,
Which falls a while at mid of day,
With tiny tinkling chime."*

An unusual thing for Killarney. But this winter sun lit up the waters of the lake and the old ruined castle of Ross, and left in shade the shores on the further side, and the towering hills which in the gloom seemed sheer and precipitous. In the distance the Macgillicuddy Reeks (don't emphasize the second syllable, by the way) loomed as a severe background, and beneath our feet was the diamond-set wood which we were beating. It was a sight for sore eyes, and I confess that I stood enjoying the scene so long that "the flapped velvet of the woodcock's wing" passed by me utterly unheeded, till I was recalled to a sense of my neglect by the jeers of the gun next me—an utterly prossic Englishman, by the way, who cared nothing for nature except as regarded pheasants, rabbits, and, above all, "cocks." Killarney is beautiful in all seasons, but in spite of the manifold attractions of the winter, August—rich, gorgeous August—is the month in which a visit will be most repaid.

The lake, however, can be wroth as well as smiling, and its anger is by no means to be despised. It happened to me once to have a very *mauvais quart d'heure* one afternoon. We were a largish party, in not a very large boat, and some of us were children. Suddenly, with little warning, a violent squall came on, when

we were some distance from any island, and about as far as we could be from the mainland. I had seen squalls on the Swiss mountain lakes, but was by no means prepared for like violence in the fair but smaller Killarney. As a matter of course, the women became frightened, and the older ladies issued all sorts of contradictory orders. The girls, as an equal matter of course, were the bravest of the party, and the children rather enjoyed the fun. I saw, however, by the head boatman's face that it was no matter for joking, and as I had luckily some influence over the steeress, the boat's head was turned for the nearest island. As it happened, we had to row almost across the wind, a whispered consultation with Danny McFlinn having convinced me that that was the wisest, if the boldest, course; and at one time it really seemed as though we should be swamped before we reached the shore. The wind howled about us in fury; the lake spat and foamed like an angry tiger-cat; rain hissed about our ears, and every moment the waves grew larger and more threatening. We shipped one or two, one which rose over the stern of the boat and frightened her of the helm so that she dropped the ropes. Luckily the pulling was very even, and we were near the shore; but the boatmen, who were rowing all they knew, had to pull the boat's head round and to put on an extra spurt. The boat rocked and rolled till her gunwale was close to the water. One of our party quietly took off his coat and waistcoat; but our swimming capacity was not to be tried, for by great exertions on the rowers' part they succeeded in reaching the lee of the island, where we waited till the squall had passed by and the lake had assumed again the smile of one who can ne'er be aught but pleasant. You may imagine that even when safe under the island we had a badish time. Censure was freely bandied about, she receiving not a little who had counselled the expedition. But we men lent the children what dry garments we had, and the younger women did not mind the wet; so that at last, when safe at tea on shore, we looked back on the incident with rather a pleasant interest.

There are but few more labels on my hat-box, but one recurs with considerable frequency. This frequency took its rise

from a beautiful spring day in the early part of one June. I came, I saw, I—was—conquered. The latter process, of course, was not done all at once; but the wound which caused my final overthrow was sudden and severe. How shall I describe the weapon? Do I know it myself? Was it the fair young face, with its marvellous combination of gravity and merriment? Was it the blue English eyes, able alike to pour forth glances of thoughtfulness, tenderness, or wit? Was it the strong, full figure, tall yet not magnificent, slender and graceful, yet rich enough for a sculptor's admiration? Was it the *tout petit pied* which peeped out occasionally from the muslin gown, and then scuttled back to its hiding-place like a rabbit? Or was it not the sunny laugh alternating with the intelligent interest, as the talk passes

"From grave to gay, from lively to severe!"

How well I remember a curious sensation on the evening of that day that something indefinable, something of which I was hardly conscious and could by no means explain, had happened to me! I felt a sort of mental indigestion, as though my mind had had too many good things; a sort of pain which is not all pain, like a toothache which is passing off. I did not analyse it; I knew not its cause then, and indeed not till my eyes were wider opened did I fully realise that this feeling had existed. But it was there, and it made me to be called all manner of bad and unsociable names at the club, where my conversation was monosyllabic and my whist subject to the demon of misplay.

The summer that followed was like a dream. Those days in Windsor Park when we wandered about under the stately trees and revelled in the luscious sunshine without and within. Those evenings on the Thames, when we floated from Cleveden down towards Windsor, and uncertainty was sweet. The afternoons in the playing-fields at Eton, where I gathered from the sister's love I saw what the wife's might be that I hoped for. The quiet Sundays, when I rested from the flare and heat and worry of the busy city, and in grave and thoughtful talk found in the mind I loved a richness and depth of which at first I wotted not. And then that happy day when sweet doubt gave place to a sweeter certainty, when the

tale which is ever old yet ever new, was poured into a little pink and white ear that absorbed it not unwillingly. When the answer for which I longed was given rather by the clear, deep eyes than by the trembling lips. And later, when the latter whispered that their owner thought Juliet was right when she said—

"My bounty is as boundless as the sea,
My love as deep; the more I give to thee,
The more I have, for both are infinite."

Then followed many happy days, when we two wandered about the rich English country and drank in the summer happiness mingled with the exquisite pleasure of each other's presence; while as they passed I learned that high as I had estimated the jewel I coveted, the jewel I possessed was of more value still. I traced one by one the founts of noble thoughts and generous actions; I found depths where I had feared shallows, knowledge where I had looked for ignorance; and I gradually came to know that I should have by my side a counsellor upon whose help and sustenance I could lean. After that again there came a badish time. Fussy ladies insisted on my boring myself in shops; I was made to advise on all sorts of mysterious colors and patterns of which I knew nothing, and then, at least, cared less. I had to hurry from furniture dealers to lawyers, from Lincoln's Inn to Regent Street. I wrote cheques till my wrist ached, pored over settlements and law-deeds till my eyes ached, and argued with tradesmen and workmen and gasmen till my jaws ached. I was accused of heartlessness because I did not care two straws whether the trimmings of a muslin gown should be blue or pink, and considered it a matter of utter indifference whether a travelling dress had better be dark blue or grey. I was looked upon as almost an outcast because I said I did not in the least mind whether we went to Wales or Switzerland after that day was passed which I thought would never come. And I only was admitted into favor when I proved myself to have a certain amount of taste in reference to a pearl necklace, which the authorities were graciously pleased to approve.

And one time I had serious difficulty. It arose in some way which I could not understand, but something about a letter appeared to have given great offence, and

severe glances were flashed indignantly at poor me as I vainly endeavored to assert innocence. The difficulty might not have been cleared up had it not turned out that a curious complication had arisen, in consequence of a letter intended for some one having been retarded in some corner of the post-office, and a letter intended for me from some one having been put in a wrong envelope.

However, all these worries, as all others do, came to an end at last; and there passed over my head a day of which even now I have a hazy conception. A restless, feverish night ended by a deep sleep in the morning. An unusual amount of new clothes brought in by my servant, including a bran-new pair of boots, with the soles discreetly blackened by the thoughtful Thomas. "Attend to that, ye church-going Benedicts." Continued restlessness through breakfast and afterwards, when I had not the slightest idea what the leaders in the *Times*, which I attempted to read, were about; but I made a sort of vague effort to see whether there was anything in the *Post* about anyone being married. Fuss till dear old Roberts appeared in his brougham, with an orange-blossom as big as a half-crown in the hole of his dear little frock-coat. When I was carried off

still fussily, and had to wait about half-an-hour in the church, with a sort of notion that every one was looking at me as if I ought to be ashamed of myself; and I was ashamed of myself without knowing why. Then a movement, which brought my heart into my mouth and set me trembling all over, as I advanced a few steps to meet a tall advancing figure clad all in white, and veiled by a fall of lace which but half hid a downcast face, raised but once with a look of love as the quivering fingers closed on mine. A dreamy ceremony, a burst of glorious music, a few happy moments of solitude in the homeward carriage; then an odious assemblage of people whom at any other time both of us would have welcomed heartily, but whose demonstrative kindness we both found wearying. A taste of stodgy cake, and a sip of champagne which might have been seltzer water for all I knew; an idea of some one saying something, and my having to say something else; my servant with a coat and hat, some one with a travelling-bag and shawl which I took from her and all but left behind; and then a whirl away to Euston Square, where my poor old hat-box was impressed by a grinning porter with its last label.—*Macmillan's Magazine*.

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MY GRANDMOTHER.

THE look, the light, the sparkling mien,
The glow, the bloom of sweet sixteen
Radiant from every feature,
A living beauty in the face,
A more than painter's pictured grace—
What was the bonny creature?

'Depinxit seventeen seventy-two,'
So runs the epigraph: but who
The artist; or his sitter,
What she was then no word to tell:
Her name, her birth, both know I well,
For she—yet seems it fitter,

To fancy that I now behold
While gazing on those locks of gold,
Some bright immortal being
Dowered with the gift of deathless youth,
Than own the dull domestic truth,
And tell myself I'm seeing—

An erewhile habitant of earth
Of human substance, mortal birth,
In yonder picture pendant.
From yonder oaken wainscot worn,
A woman, and of woman born—
And I—just her descendant.

Ah, grandame mine! when first did care
Wrinkle that smooth brow pictured there,
When darkened first life's landscape fair?

For as I gaze, it rather
Seems right, methinks, that in our race
We each should change our lineal place,
And I, oh maid of sunny face!
Grizzled and grey, and void of grace,—
And I be your grandfather!

London Society.

THE OLDEST FAIRY TALE IN THE WORLD.

SOME ten years ago, Dr. Brugsch, the eminent Egyptologist, of Berlin, published a modest little volume entitled, "Aus dem Orient," comprising a series of essays descriptive of his travels in Egypt. Graphic and learned as these pages all are, the most curious of them is the one entitled, "The Oldest Fairy Tale in the World;" and there is no room to doubt its just claim to such an appellation.

It would appear that in 1852 an English lady acquired by purchase a roll of papyrus inscribed with hieroglyphic characters, which she submitted to the Vicomte de Rougé, then Director of the Museum of Oriental Manuscripts in Paris, for his opinion of its purport. This distinguished scholar published the result of his investigations in the *Revue Archéologique*, declaring the composition to be nothing less than a story written by a Pharaonic scribe, for the edification of the young Crown Prince Seti Manephta, the son of Pharaoh Rameses Mi-amum, the founder of the cities of Pithom and Rameses, who ruled in Thebes B.C. 1400, and at whose court Moses was educated.

Subsequently the authorities of the British Museum, where the papyrus is now deposited, fully confirmed the learned Frenchman's interpretation, and established the high rank in contemporary literature attached to this composition by deciphering the endorsement on the manuscript, which runs thus:—

"Found worthy to be wedded to the names of the Pharaonic scribe, Kagabu, and the scribe Hora, and the scribe Meremaru. Its

author is the scribe Annana, the proprietor of this scroll. May the God Thoth guard from destruction all the words contained in this scroll!"

The pious prayer was heard, for in the year 1863 a learned German unfolded his papyrus, and read to a Berlin audience a literal translation of the Fairy Tale told to the son of Rameses the Second thirty-two centuries ago.

This is the only hieroglyphic document hitherto discovered which belongs to the world of fiction, though in its language and manner it resembles other productions of its period. Its resemblance to the style and structure of Scriptural writings is very striking, and it is not a little interesting to find Biblical stories here grafted upon a Pantheistic fable. The story in itself derives a peculiar interest from certain allegorical meanings which do not lie on the surface, but which a knowledge of ancient Eastern legends cannot fail to suggest.

It will be observed that the younger brother Batau remains alive after he has voluntarily parted from his "soul," which is laid "in the top of the cedar-blossoms," —it may be as a sacrifice: in this case not made for sin, but for sin falsely imputed to an innocent man. It is offered in a "high place," as it were; and it must be washed in pure "cold water," ere it can live anew. He hunts and carries on his ordinary pursuits, and even marries a wife, to whom, indeed, he acknowledges the absence of virile strength, resulting from the loss of his "soul." But his physical existence does not cease until the soul is

displaced from its dwelling-place by the destruction of the cedar-tree in whose blossoms it abode. Even when the soul, after being found in the fruit (not flower) is, in accordance with the prescribed formalities, restored to its human home, it must yet be made to drink the pure water ere it "finds itself in its old place." Then, and not till then, does Batau recover his manhood, and is enabled to bear fruit in the land of Egypt by the wife who had been given to him by the gods when he was without a "soul," and therefore childless.

Dr. Brugsch claims the merit only of strict and accurate adherence to his text; and the English translator has no pretension to anything more than a faithful rendering of the German version. S.

FOLIO I.

1. There were two brothers by one mother and one father. The name of the elder was Anepu, and the name of the younger was Batau. And Anepu had a house and a wife.

2. His younger brother was with him as a son, and he clothed him. And he followed behind his oxen in the field.

3. And when the field labor of the plough was finished, then he would help in other field labor. And behold! the younger brother

4. was a good worker, and none was equal to him in all the land. *And when the days had been many*, the younger brother was

5. by his oxen, as was his daily wont, and he drove them homeward every evening laden

6. with various herbs of the field; and he laid the herbs before the beasts. Meanwhile the elder brother sat by

7. his wife, and he ate and he drank while his younger brother was in the stalls by his oxen.

8. *And when the earth became light*, and a new day dawned, and the lamps burned no more, then he arose before his elder brother and brought

9. bread into the field, that he might give it to the laborers, that they might eat in the field. Then he followed after his oxen,

10. and they would tell him where the good herbs grew, and he listened unto their words, and he drove them to the

FOLIO II.

1. where the good herbs grew which they relished. And the oxen which went before him became very strong, and they increased in numbers

2. mightily. *And it was now the time of ploughing*, and his elder brother spoke to him and said: Let us take the teams,

3. and let us go ploughing, for the fields are appearing in view (after the flood), and the time is good for ploughing. Therefore shalt thou come

4. "unto the field with seed, and we will occupy ourselves with ploughing." Thus he spake unto him: his

5. younger brother did in all wise as his elder brother bade him do. *And as the earth grew light*, and

6. a new day dawned, they went unto the field with their teams and had full labor.

7. And they were glad over the completion of their work. *And when the days*

8. had been many after these, they were in the fields, and they were in want of seed; and he sent

9. his younger brother, saying to him, "Hasten and bring seed out of the village." And his younger brother found the wife

10. of his elder brother as she sat plaiting her hair. Then he spake to her and said: "Arise and give me seed,

FOLIO III.

1. for I must hasten back unto the field, for my brother bid me return without delay." Then she spake to him, "Go,

2. open the corn-room and take what thy soul desires, for my hair might come undone on the way." Then the youth went

3. away into the stalls; and he took with him a large basket, for he wished to carry much corn, and he loaded himself

4. with wheat and barley, and came forth therewith. Then she spake to him and said, "How much carriest thou?" And he said to her: "Three measures of barley

5. and two measures of wheat, in all five measures I carry in my arms." And she spake unto him, saying, "Great is

6. thy strength, and I have ever looked upon thy strength;" and her heart knew him, and she

7. burnt after him, and she said, "Come, let us rejoice and rest for an hour. Adorn thyself, and I will give thee

8. rich clothing." Then the youth grew like unto a panther in his anger at

9. these bad words which she had spoken to him; and behold! she was much afraid. And he spoke unto her and said: "Oh, woman,

10. thou art to me as a mother and thy husband is to me as a father. For he is older than I am, even as if he were my father. What

FOLIO IV.

1. a great sin is that which thou hast spoken to me! Never again shalt thou speak such words; but I shall not speak of them to others, nor shall I let one word go forth from my mouth to any man whatever."

2. And he loaded himself with his burden, and he went into the field. And he came to his brother, and they had much work to do, and they

3. labored on. *And when the day was passed, and when the evening closed in,* then the elder brother returned to his house.

4. His younger brother was behind his oxen, and had laden himself with various herbs, as he drove his oxen

5. before him, to make for them litter in their stables in the village. And behold! the wife of his elder brother was frightened

6. at the speech she had spoken. And she cut herself and made wounds, and she made herself appear as one who had suffered violence from a miscreant; for

7. she wished to say to her husband: "Thy younger brother hath done me violence." And her husband returned home in the evening

8. as was his daily wont, and he entered into his house, and he saw his wife lying down as if she had suffered violence from a miscreant:

9. and she did not rise to give him water out of her hand, as was her wont, and she did not light the lamps for him, and his house was dark. And she lay there

10. pale. And her husband spoke to her and said: "Who has spoken unto thee? Arise!" Then she said unto him, "No one has spoken unto me but your

FOLIO V.

1. younger brother; for when he came to fetch corn, then he found me sitting down, and he said to me: Come, let us rejoice and rest for an hour;

2. put on thy rich garments. Thus he spake unto me, but I did not hearken to him, but said: See, am I not as thy mother, and thy elder brother is he not as thy father to thee?

3. Thus I spake unto him, and he was afraid, and he did violence to me that I would not bear witness against him. And if you let him live, then shall I die. Behold!

4. He came that he might. . . . and if I endure these bad words he will surely do it. Then the elder brother

5. grew like the panther, and he sharpened his axe and took it in his hand. And the elder brother stood behind the door

6. of his stall to kill his younger brother when he should come in the evening and drive the oxen into

7. the stall. And when the sun set he had laden himself with various herbs of the field, as was his wont, and

8. he came, and the first cow entered the stall. And she spake to her master and said, "Beware of thy elder brother who stands

9. with an axe to kill you. Keep afar from him." And he heard the speech of the first cow.

FOLIO VI.

1. And the other beasts came in, and they spake likewise. And he looked under the door of the stall,

2. and he saw the legs of his elder brother, who stood behind the door with an axe in his hand;

3. and he laid down his burden and fled hastily from thence, and

4. his elder brother followed him with his axe. And the younger brother prayed to the Sun-god Harmachis,*

5. saying: "My good lord, thou art he who distinguishest between falsehood and truth." And it pleased the Sun-god

6. to listen to his complaints; and the Sun-god made a large stream of water to arise between him and his elder brother, and the water was

* i.e. Amoun-Ra.

7. full of crocodiles. And one brother was upon one shore and the other was upon the other shore.

8. And the elder brother struck two blows with his hand, but he could not slay him. Thus did he. And

9. his younger brother called to him from the shore, saying: "Remain, and wait until the earth shall grow light, and when the Sun's face shall arise, then shall I

FOLIO VII.

1. open myself unto thee and let thee recognise the truth; for never have I done evil unto thee.

2. But in the place where thou dwellest there will I not stay, but I will go to the cedar-mountains." *And when the earth had become light, and another day had dawned,*

3. the Sun-god Harmachis shone out, and one brother looked at the other. And the youth spoke to his elder brother, saying:

4. "Wherefore dost thou pursue me to slay me with injustice? Hearest thou not what my mouth speaks? namely, I am thy younger brother, and

5. thou wert to me after the manner of a father, and thy wife was to me after the manner of a mother. Behold, was it not so when thou didst send me to fetch corn that

6. thy wife said unto me: Come, we will rejoice and repose for an hour? And behold! she has told thee otherwise." And he made

7. him to know what had taken place between him and his wife. And he swore by the Sun-god Harmachis as he spoke: "If that

8. it be thy intention to slay me with injustice, then place thy axe in the opening of thy girdle;" and he took

9. a sharp knife, and he cut a limb off his body and he flung it into the river. Then

FOLIO VIII.

1. he sank down and swooned and grew deadly faint. And the soul of his elder brother was sore troubled. And he stood there and wept and lamented; but he could not go over to his younger brother for fear of crocodiles.

2. And his younger brother called to him, saying: "Behold, thou didst conceive evil, and thou didst not have good in thy mind. But I will give thee tidings

what thou shalt do. Return unto thy house

3. and tend thy beasts, for I shall not stay where thou dwellest, but will go to the cedar-mountains. This shalt thou then do for me when thou comest to look after me.

4. Know then that I must part from my soul, that I may lay it in the top of the cedar-blossoms. And when at last the cedar shall be cut down, it shall fall upon the earth.

5. When thou comest to seek my soul, thou shalt seek it for seven years; and if thy soul can endure that, then shalt thou find it. Then place it in a vessel with cold water. Then shall I live anew, and shall give answer

6. to all questions, to make known what further shall be done unto me. Let there be likewise at thy hand a flask of barley-drink, seal it, and delay not, that it may be near thee." And he went

7. to the cedar-mountains, and his elder brother returned into his house, and he laid his hand upon his beard, and he threw dust upon it; and when he entered his house he slew

8. his wife, and he flung her body before the dogs, and he sat himself down to mourn over his younger brother. And *after many days* his younger brother found himself in the cedar-mountains;

10. and nobody was with him, and he passed the days in hunting the beasts of the land, and in the evening he came and he laid himself down under the cedar-tree, in the top of whose blossoms his soul was lying.

FOLIO IX.

1. *Many days later* he built himself a hut with his hands on the cedar-mountain,

2. and filled it with all goods, such as he would have in his house. And as he went forth from his hut, he met the assembly of the Gods

3. who had come forth to care for the wants of the whole land. And the host of Gods spake among each other and said unto him:

4. "Oh! Batau, thou bull of the Gods, why art thou here alone, and why hast thou left thy land because of the wife of Anepu thy elder

5. brother? for lo! his wife is slain. Return unto him, and he will answer thy questions." And their hearts felt pity

6. for him greatly. Then said the Sun-god Harmachis to Khnum:^{*} "Thou shalt create a wife for Batau, so that

7. he may not sit alone." And Khnum created a wife for him; and as she sat by him she was more beautiful in form than all the women in

8. the whole land; all godhead was in her; and the seven sons of Athor[†] came and looked upon her, and they said with one

9. mouth: "She will die a violent death." And he loved her very dearly, and she sat in his house while he passed the day

FOLIO X.

1. in hunting the beasts of the land, to lay the prey before her. And he said unto her, "Go not forth, lest thou shouldst meet the sea,

2. which would bear thee away; for I am not able to save thee, being womanly like thyself, because my soul lies in the top

3. of the cedar-blossoms. If another finds it, then I must combat for it." And he opened his heart unto her in all its breadth.

4. *Many days later*, Batau had gone forth to hunt, as was his daily wont.

5. His young wife, however, had gone forth to wander under the cedar which stood by her house, and behold! the sea saw her,

6. and rose behind her; but she saved herself with fleet steps, and entered into her house.

7. But the Sea called to the Cedar, saying: "Oh! how I love her!" And the Cedar gave the Sea a lock of her hair, and

8. the Sea bore the lock of hair to Egypt, and laid it down on the spot where the washermen of the house of Pharaoh were. And the perfume

9. of the lock of hair pervaded the garments of Pharaoh, and a dispute arose among the washermen

10. of Pharaoh, while they spoke and said: "A perfume of salve-oil is in the garments of Pharaoh," and hence there was disputing daily;

* *i.e.* the God of generation.

† *i.e.* the Setting Sun, the Queen of the West, the Egyptian Aphrodite.

FOLIO XI.

1. and they knew not what they did. But the chief of the washermen of Pharaoh went to the sea, and his soul was troubled

2. sorely, because of the daily disputing, and he arose and stood on the shore opposite to the lock of hair

3. which lay in the sea. And he bent down, and he seized the lock of hair. And in it there was excessive sweet perfume. And he carried it to Pharaoh. And the most learned scribes were summoned; and they said to Pharaoh, "This is the lock of hair

5. of a daughter of the Sun-god, and all godhead is in her. The whole land submits to thee. Well, then, send messengers

6. in all lands to seek her; but the messenger who shall go to the cedar-mountain, let him be attended by many people

7. to bring her here!" And behold! the king said: "It is truly good what you have said!" And he sent them forth. *Many days later*,

8. the people came back, who had been sent into the land to bring the king tidings; but the messengers came not,

9. who had been sent to the cedar-mountains, for Batau had slain them, and he had spared only one to return with tidings to the king.

10. And the king sent forth people, many warriors, horse and foot, to seek her anew:

FOLIO XII.

1. and among these was a woman. And to her they gave in her hand all kinds of splendid woman's adornments. And the wife of Batau came to

2. Egypt with her, and there was great rejoicing in the whole land, and the king loved her dearly:

3. and he raised her to the highest place. And they spake unto her that she might divulge the story

4. of her husband. Then she said to the king, "Let the cedar-tree be cut down that it may be destroyed." Then

5. they sent armed men, bearing axes, to cut down the cedar-tree: and they came

6. to the cedar, and they cut the flower

in the midst of which lay the soul of Batau.

7. And the flower fell, and Batau died in a short time. *And when the earth had grown light, and a new day arose, then*

8. they likewise cut down the cedar-tree. And Anepu, Batau's elder brother, went into his house,

9. and he sat down and washed his hands; and he took a jar of barley-drink; and he sealed it with pitch;

10. and he took another jar of wine, and he stopped it with clay; and he took his staff

FOLIO XIII.

1. and his shoes, together with his garments and his travel gear, and he went upon his way

2. towards the cedar-mountain. And he came to the hut of his younger brother, and he found his younger brother lying stretched out

3. upon his mat. He was dead. And he began to weep as he saw his younger brother lying stretched out even as a dead man. Then he went

4. to seek the soul of his younger brother under the cedar under which his younger brother lay down in the evening;

5. and he searched for three years without finding it. And when the fourth year came, then his soul yearned after Egypt,

6. and he said, "I will go thither tomorrow early." Such was his intention. *And when the earth had grown light, and a new day arose, then he made*

7. his way to the cedar-tree, and he was busy all the day seeking the soul. And in the evening he looked around once more and

8. he found a fruit; and as he returned homeward with it, behold! there was the soul of his younger brother. Then he took

9. the vessel with cold water, and he laid it therein, and he sat down as was his daily wont. *And when it had grown night*

FOLIO XIV.

1. the soul soaked up the water, and Batau moved in all his limbs and gazed at his elder brother;

2. but his heart did not beat. Then Anepu the elder brother took the vessel with cold water wherein lay

3. the soul of his younger brother and let him drink it up, and behold! the soul

found itself in its old place. Then he became as he had ever been. And one

4. embraced the other, and one spoke to the other; and Batau said to his

5. elder brother, "Behold! I will transform myself into a holy bull with all tokens of holiness. And none shall know

6. the secret, and thou shalt sit on my back. And as the sun shall rise, so shall we be on the spot where my wife is. Answer me

7. whether thou wilt lead me thither? for they shall show thee all goodness due. They will

8. load thee with silver and gold if thou leadest me before Pharaoh; for I shall bring great good fortune,

9. and they will glorify me in the whole land!" *And when the earth had grown light,*

FOLIO XV.

1. *and a new day had come*, Batau assumed the form which he had described to his brother. And Anepu

2. his elder brother sat himself upon his back at daybreak. And he approached the place, and they

3. let the king know. And he looked at him and was much rejoiced, and feasted him

4. with a feast greater than words can speak, for it was a great good fortune to him. And there was joy because of him throughout the land, and they

5. brought silver and gold for his elder brother who remained in the village, and they gave many servants to the bull,

6. and many things, and Pharaoh loved him dearly, more than any man in the whole land.

7. And *after many days later* the bull went into the holy place, and he stood in

8. the same spot where the fair one was. Then he spake to her, and said: "Behold, still do I live in the flesh!" Then

9. she spake: "Who then art thou?" and he said unto her, "I am Batau, and thou

10. when thou didst make the cedar-tree to fall didst make known to Pharaoh where I was that I might live no more.

FOLIO XVI.

1. Look on me; still do I live in the flesh; but I am in the form of a bull."

Then the fair woman was in much fear at these tidings which

2. her husband had spoken to her. And when he had gone forth from the holy place, and the king, in order to pass a joyful day, sat with her,

3. and as she found herself in the king's favor, and he showed himself beyond measure gracious to her, then she said to the king, "Swear to me by God

4. to grant all that I shall ask of thee." And he granted her all that she asked, and she said, "Let me eat of the liver of this bull,

5. for you do not want him." Thus she spake to him. Then he grew very sad over what she said, and the soul

6. of Pharaoh was sorely troubled. *And when the earth had grown light, and a new day had come, they prepared a great feast,*

7. and brought sacrifices to the bull. But there went forth one of the king's first servants to slay the bull. And

8. it came to pass, as they were about to slay him, there stood people at his side. And as he gave him a blow on his neck

9. two drops of blood fell upon the spot where the king's two doorposts stand, the one upon the one side of

10. Pharaoh's gates, and the other upon the other side. And they grew into two tall Persea-trees.*

FOLIO XVII.

1. And each of them stood alone. Then they went to the king to tell him, "Two large Persea-trees have, to the king's great good

2. fortune, grown in the night where stands the great gate of the king; and there is great joy

3. because of them in all the land." And *some days later* the king

4. went forth adorned with a necklace of lapis-lazuli, and sweet wreaths of flowers were on his neck, and he was in a carriage of gold.

5. And as he went forth from the royal house he beheld the Persea-trees. And the fair woman had gone forth likewise, and she was in a carriage behind Pharaoh.

6. And the king seated himself under

* The Persea-tree, mentioned by Theophrastus and Dioscorides as having medicinal or life-restoring properties.

the Persea-tree. But the Tree said to his wife, "Ah! thou false one!

7. I am Batau, and I still live; and I have transformed myself. Thou didst tell Pharaoh, in order to slay me, of

8. my dwelling-place. I was the bull, and thou didst have me slain." And *after many days*

9. the fair one was in the favor of the king, and he was gracious unto her. Then she spake to the king,

10. "Swear to me to do all that I shall ask of thee;" and he granted her

FOLIO XVIII.

1. all that she asked; and she said, "Let the two Persea-trees be cut down, that fine planks may be made thereof."

2. and her words were fulfilled. After *many days later* the king

3. let skilful workmen come that they might cut down the Persea-trees, and the fair queen stood by to see it.

4. And a splinter flew out and entered into the mouth of the fair woman, and she

5. knew that she was pregnant. And they did

6. all that her soul desired. And it came to pass *after many days*

7. that she bore a son, and they went to announce to the king, "A son

8. is born unto thee." And he was brought unto him, and they gave him a nurse and attendants; and there was

9. joy in all the land. Then they sat down to celebrate a feast, and they gave him

10. his name; and from that hour the king loved him dearly, and he named him

FOLIO XIX.

1. the son of the king of Ethiopia. And *when the days had been many*, after this, the king made him

2. governor of all the land. And *when the days had been many*, after this, and he had

3. governed for many years, the king died; and when Pharaoh had flown to heaven,

4. then Batau spoke: "It is good, let the mighty and the great of the royal court be brought here, that I may tell them the whole history

5. of what has happened to me and the

queen." And his wife was brought unto him, and he made himself known unto her, and they spoke their speech.

6. And they brought his elder brother to him, and they made him governor of

the whole land. And he reigned thirty years as king of Egypt.

7. When he had lived thirty years, his brother stood in his place on the day of his burial.—*Macmillan's Magazine*.

MR. J. S. MILL'S RELIGIOUS CONFESSION.

WE have just received more posthumous confessions of John Stuart Mill's.* We do not pretend to have studied or even completely read as yet the Essays on Nature, the Utility of Religion, and Theism, which Messrs. Longman have just published. But the fragments of these Essays which unaccountably leaked out in the Northern papers, with the fuller expositions of the book itself, are, at all events, sufficient to give a very clear general impression of his point of view. And it is obvious that the moral and intellectual authority for which, in future, his name will be quoted in theological controversy, will be one of a very complex, hesitating, and ambiguous character. No one could have anticipated, at the time when Mr. Mill published his "Logic" and his "Essays on some Unsettled Questions of Political Economy," that when his career came to an end, he would have influenced his age chiefly as a kind of potent intellectual yeast or ferment, instead of as a great inculcator of definite truths. He began life chiefly as the antagonist of the *a priori* school of philosophy and as an advocate of the empirical school which found the germs of all our knowledge in particular sense-impressions and the law of association; partly also as one of the most severe disciples of the great teachers of 'the dismal science,'—Malthus and Ricardo. But we of the present generation shall now look upon these elements of his teaching as mere infinitesimal constituents in the powerful stimulus which he gave to the various conflicting tendencies of the seething and distracted thought of our times. The general effect of his writings will not be any definite teaching at all, but a sort of impregnation of the waters of a cold and empirical school of thought with foreign sources of agitation and ebullition rendering them apparently ardent and

exciting. His experience-philosophy, was soon saturated with at least the deepest admiration for the methods, if not for the results of Coleridge's speculations; his political economy was modified by the warmest sympathy with the peasant and the labouring class, and the profoundest desire to mingle moral with economical motives in the distribution of wealth and industry. In politics his abstract democratic principles soon exhibited a strong defection in the direction of Conservative scorn for the vaunted omnipotence of Radical machinery; and then afterwards, during his short political career, displayed a strong reaction towards "heroic measures" and popular sympathies. And in the region of ethics and religion his name is likely to be remembered chiefly for the heterogeneous character of the intellectual germs which floated about his mind like the light seed-vessels of plants of the most mutually incompatible habits of growth and nutrition. It will be said of him that while he was a strict Utilitarian, finding the sanctions of all the ethical principles he admitted in their tendency to promote the happiness of the race, he yet thought it not only right, but obligatory on a high-minded man to defy even an *omnipotent* being who should threaten men with eternal sufferings for refusing to surrender their finite notions of virtue to his own arbitrary will and law; that he regarded the *direct* pursuit of happiness—*i. e.*, of the only final end of life—as fatal to the happiness pursued; and that he felt far more reverence for the enthusiastic emotions which arise incidentally during the pursuit of benevolent objects than even for those benevolent objects themselves. And now that the posthumous essays on Nature, Religion, and Theism have appeared, it must be added that while he doubted everything, from the existence of God and the divine mission of Christ to the immortality of the soul, he distinctly rejected nothing, except the divine omnipotence; nay, that he preached the duty of saturating the imagi-

* *Three Essays on Religion.* By John Stuart Mill. London. Longmans. New-York. Henry Holt & Co.

nation with possibilities of religious truth which he did not rate high, rather than stint the elastic force of hope by a rigid adherence to a rational standard of intellectual expectation. In short, Mr. Mill professed his wish that human nature should feed itself, consciously and deliberately, on very dubious, not to say slender hopes,—without, however, disguising from itself the slight character of those hopes,—by way of reinforcing its otherwise too small resources of aspiration; that it should store up for itself new impulses through the habitual contemplation of spiritual contingencies the prospect of ever realising which would hardly exceed the chance of a prize in a very hazardous lottery, and this solely on the ground that all the anticipations in which men may indulge themselves with real confidence, are inadequate to the work of providing sufficiently inspiring and elevating themes. The following are his words:—

"To me it seems that human life, small and confined as it is, and as, considered merely in the present, it is likely to remain, even when the progress of material and moral improvement may have freed it from the greater part of its present calamities, stands greatly in need of any wider range and greater height of aspiration for itself and its destination which the exercise of imagination can yield to it, without running counter to the evidence of fact; and that it is a part of wisdom to make the most of any, even small, probabilities on this subject which furnish imagination with any footing to support itself upon. And I am satisfied that the cultivation of such a tendency in the imagination, provided it goes on *pari passu* with the cultivation of severe reason, has no necessary tendency to pervert the judgment; but that it is possible to form a perfectly sober estimate of the evidences on both sides of a question, and yet to let the imagination dwell by preference on those possibilities which are at once the most comforting and the most improving, without in the least degree overrating the solidity of the grounds for expecting that these rather than any other will be the possibilities actually realised." (pp. 245-6.)

Thus, Mr. Mill was an empiricist who attached more importance to the secondary than to the primary forms of pleasureable satisfaction; a Utilitarian who was more of a believer in the sacredness of disinterested emotion than transcendentalists themselves; an economist who carried sentiment with a high hand into the very heart of questions affecting the accumulation and distribution of wealth; a necessarian who was the most passionate advo-

cate of liberty; a democrat who eagerly defended the rights of culture and the full representation of independent thought; nay, he was a sceptic who held the character of Christ all but divine, and who wished men to cling to the belief in even a slender hope of divine guidance and personal immortality for the sake of the new moral resources such a hope must give;—and in practical matters, he was the enthusiastic advocate of a change which would tend to deprive women of the highest influence they have, while gaining for them a power for which they seem to most of us little suited. Of course, the mind which threw so much ardor into such paradoxical positions must appear to future ages as one of the most incalculable of the intellectual influences of his day—one who fostered enthusiasms rooted in doubt, and revolutionary changes founded on visionary hopes,—one who acted like a ferment on almost all schools of intellectual tendency, developing rapidly all the floating germs in their authors' minds, and yet which robbed even that which it stimulated most, of anything like the firmness and stability of a steady conviction.

And no doubt the total influence which John Stuart Mill will exercise on the development of English thought will be rather this,—that he will have rendered it difficult for sceptics to shut themselves up in a shell of repellent theory,—that he will have taught them to sound all the doubtfulness of doubt, to enter into all the paradoxes of an empirical philosophy, to appreciate the religious enthusiasm consistent with a utilitarian belief,—than that he will have made any fundamental truth or any fundamental denial clearer than it was before. He will have given an ideal tone to political economy, and grafted a Conservative vein into democratic theory. He will have persuaded not a few of the disciples of Bentham that they ought to delight in emotions which it is impossible on Bentham's principles to justify, and to flush with joy at the prospect of changes the advantageous results of which are as yet visible only to the most sanguine eye. He will have convinced many Materialists that though there can be no omnipotent God of perfect holiness, there may be a very powerful, invisible Being who is helping us to struggle against impossible conditions, not much more or not much less

mighty than himself. And he will have induced certain Rationalists who smile at revelation, to believe that it becomes a sceptic to reserve the possibility at least that Christ actually was exactly what in the first three Gospels he declares himself to be,—*i. e.*, not in Mr. Mill's belief, God at all, but a divine messenger of God's sent into the world to declare the will and unveil the nature of the Being who sent him. No doubt the effect of all this, not only on Mr. Mill's philosophical allies, but on their opponents of all schools, must be to increase very much the sense of ultimate uncertainty;—on his allies, because it shows them how much a negative thinker could sympathize with tendencies which his philosophy went to undermine; on his opponents, because bewildering them with the vision of sympathies where they looked for prejudices, and yet sympathies which only permitted their subject to throw them the crumb of comfort involved in a 'perhaps.'

But even that is not the most curious feature of his total moral effect as a thinker. The most curious seems to us to be that, while mediating to some extent between opposite tendencies, and increasing the sense of ultimate uncertainty about the foundations of things, Mr. Mill was the very apostle of noble emotions, panegyrising the disinterested feelings generated like phosphoric flames by the decay of the earthly objects of desire, and making a sort of religion of personal enthusiasm, without much relation either to the calculable advantages of the course he advocated, or to the hopefulness of the campaign. This gives something of a hectic effect to the character of his teaching. The enthusiasm looks more like the enthusiasm of fever than the enthusiasm of health, when one considers how it derives its origin from selfish sources which fail to justify its existence, and how it flames upwards towards objects, the very existence of which is expressly stated to be involved in a haze of doubt. One cannot but admire and even reverence the nobility of the mind which felt so keenly the sacredness of the glow of disinterested enthusiasm, alien as it was to his philosophy of things, as passionately to welcome it, and eagerly to dwell on the ambiguous and shadowy hopes on which it was most likely to gain strength. It is impossible to feel anything but profound admiration for

the delicate love of truth which makes Mr. Mill array so carefully all the half-tangible grounds of the hope-to which he clings, and yet sadly confess how small individually they seem. Still how strange it is to contrast what Mr. Mill has written concerning the genius and character of our Lord, with his own view of the slender probability of Christ's own beliefs!—

"And whatever else may be taken away from us by rational criticism, Christ is still left,—a unique figure, not more unlike all his precursors than all his followers, even those who had the direct benefit of his personal teaching. It is of no use to say that Christ, as exhibited in the Gospels, is not historical, and that we know not how much of what is admirable has been superadded by the tradition of his followers. The tradition of followers suffices to insert any number of marvels, and may have inserted all the miracles which he is reputed to have wrought. But who among his disciples or among their proselytes was capable of inventing the sayings ascribed to Jesus, or of imagining the life and character revealed in the Gospels? Certainly not the fishermen of Galilee; as certainly not St. Paul, whose character and idiosyncrasies were of a totally different sort; still less the early Christian writers, in whom nothing is more evident than that the good which was in them was all derived, as they always professed that it was derived, from the higher source. . . . But about the life and sayings of Jesus there is a stamp of personal originality, combined with profounding of insight, which, if we abandon the idle expectation of finding scientific precision where something very different was aimed at, must place the Prophet of Nazareth, even in the estimation of those who have no belief in his inspiration, in the very first rank of the men of sublime genius of whom our species can boast. When this pre-eminent genius is combined with the qualities of probably the greatest moral reformer and martyr to that mission who ever existed upon earth, religion cannot be said to have made a bad choice in pitching on this man as the ideal representative and guide of humanity; nor even now would it be easy, even for an unbeliever, to find a better translation of the rule of virtue from the abstract into the concrete than to endeavor so to live that Christ would approve our life. When to this we add that, to the conception of the rational sceptic, it remains a possibility that Christ actually was what he supposed himself to be,—not God, for he never made the smallest pretension to that character, and would probably have thought such a pretension as blasphemous as it seemed to the men who condemned him, but a man charged with a special, express, and unique commission from God to lead mankind to truth and virtue, we may well conclude that the influences of religion on the character which will remain after rational criticism has done its utmost against the evidences of religion are well worth preserving, and that what they lack

in direct strength as compared with those of a firmer belief, is more than compensated by the greater truth and rectitude of the morality they sanction."

Now what is the very stamp of the genius or originality on which Mr. Mill so justly insists in this estimate of Jesus? Is it not precisely that certainty of insight into divine things which Mr. Mill decides to be wholly unjustified and unjustifiable by his review not merely of Christ's own career, but of all that happened previous to and all that followed that career? Not to refer to the Gospel of John, of which Mr. Mill's estimate is so strangely contemptuous, was he not thinking as he spoke of the profundity and originality of Christ's genius of the calm confidence of "Blessed are the pure in heart, for they shall see God," "Every plant which my heavenly Father hath not planted shall be rooted up," "Be ye therefore perfect, even as your Father which is in heaven is perfect," "Who is my mother and who are my brethren? Whosoever shall do the will of my Father which is in heaven, the same is my brother, and sister, and mother." Now, where is the 'genius' in such sayings if they represented not insight into the truth, but the overwhelming might of a potent delusion—if the true state of mind on these subjects should be that which Mr. Mill delineates in these remarkable essays, the anxious hoarding-up of a number of doubtful indications of the supernatural influence of a Being of limited power,—"evidence insufficient for proof, but amounting only to one of the lower degrees of probability" for the existence of any God at all? If this be so, surely the certainty and simplicity of Christ's insight would be a mark not of genius, but of hallucina-

tion,—unless, indeed, the sceptic takes the view hinted at by Mr. Mill, that Christ may have really been what he assumed himself to be, *i. e.*, may have had evidence which we cannot recover of the divine life in which he lived. Only from any confident belief of this kind Mr. Mill is wholly shut out, for if he held it confidently, he must hold with precisely equal confidence the existence of the supernatural being whom Christ revealed. Yet if he thought it a mere possibility that Christ spoke of what he knew when using the language of knowledge instead of the language of surmise,—surely he ought to think of the 'genius' of Jesus, as he calls it, only as of a very small possibility of the same order. On Mr. Mill's view, Christ was either a great genius, or had a wonderful aptitude for grand hallucinations, the last being to him much the more likely of the two,—otherwise, Mr. Mill's own slender 'hope' would take the form of a firm belief. Anyhow, nothing is stranger than the contrast between the language of the admirer, and the language of him whom he so profoundly admires on divine subjects. The former is the language of hesitating feeble hope, hope of a low order, but which nevertheless warrants the attitude of enthusiasm and the glow of a poetic aspiration. The latter is the language of an absolute vision of calm certainty, which warrants no such feverish emotion, but only undoubting trust and happy devotion. Will not the potent ferment which Mr. Mill has cast into the boiling cauldron of modern thought, end in making it seem far more reasonable to accept the quiet language of implicit faith, than the impassioned language of an idealizing dream at once excited and despondent?—*The Spectator.*

FIRST PRINCIPLES OF AERIAL TRANSIT.

BY F. H. WENHAM, C.E.

UNIMPEDED by all terrestrial obstacles—to man impassable without the aid of science—birds of passage traverse with ease their aerial roadway with level track, making every chosen spot of earth alike their home, instinctively directed by change of season to more congenial climates.

The question is frequently asked, Is man ever destined to accomplish this sublime

mode of locomotion, or is it always to remain the sole privilege of unthinking animal creation? The answer is generally in the term "impossible," so far that it is a common proverb uttered to express the height of impossibility.

It is not an easy task for objectors to explain the conditions on which such a very positive assertion is based. It is generally summed up in the statement, "Not power

enough; the pectoral muscles of birds are enormously strong in proportion to their weight, far exceeding those of any terrestrial animal." And thus the argument is abruptly dismissed. But this reasoning is both unphilosophic and untrustworthy, and forms no criterion for the determination of a mechanical condition of actual work performed; for a large bird must of necessity have powerful pectoral muscles, merely for the purpose of sustaining the weight of the body on those wings, even supposing that they rested on solid supports or props. The wings are hinged to the body like levers, and these huge muscles are needful merely to supply the place of rigidity when no mechanical force is expended in the way of motion. Rejecting, therefore, the size of muscles as an uncertain proof of acting force, as far as it relates to rapid motion, and avoiding all abstruse calculations and complex formulæ, let us consider a few of the acting laws involved in the question of flight.

There is no principle in mere rapid horizontal movement alone that would cause a heavy body to maintain its level, for during this motion it is still answerable to the laws of gravity. If a leaden ball is set free in *vacuo*, it will fall sixteen feet in the first second of time. If that same ball is fired horizontally from a rifle, and propelled a mile distance in one second, it will still descend sixteen feet during its passage, falling as before in the same time.

If the ball is fired on the level of perfectly smooth water, it will not sink till the force is nearly expended. It would remain above water without sinking as long as the velocity was maintained. This arises from the fact that the ball, in its swift passage over the surface, meets with so many particles in a brief period, that there is no time to give them motion, and, in consequence, the water stratum is not deflected or does not yield under such a speed; therefore the ball continues to traverse as if on a solid plane. This being illustrative of a main principle of flight, will be referred to again under a modified condition.

Assuming, from our knowledge of elementary laws, that there is no principle in any form of motion that can be given to a weight within a body in free space that will create a persistent force in one direction only, so as to counteract the action of gravity due to the earth's attraction, and that weight is an absolute condition of all tangible matter, it follows that in flight the

air alone must be considered as the sole medium of support. Rapid transit at the will of the aeronaut is the main condition worth consideration, as a subject of general utility; aerostation, implying the use of large volumes lighter than an equal bulk of air—exemplified by the various forms of balloons—may be excluded from the argument, as the inconveniences attendant upon their use, and their enormous size, renders anything like speed of propulsion impracticable—precluding all hopes of improvement or discovery in this direction as a means of locomotion to be generally employed by man.

The laws of flight, in the true sense of the term, must be considered entirely upon the resistance of the atmosphere, and based upon its principles of action and reaction, implying the impulse of a very light body—such as air—affording support to one of far greater density—such as that of a bird—with the least possible expenditure of power, the aerial stratum forming a roadway that levels all terrestrial obstacles, and one that will not yield during the passage in flight to a degree causing an undue expenditure of force.

According to the laws of action and reaction in two bodies in motion towards each other, if they are components of different weights or densities, and as time is always an element in the determination of the value of mechanical power, it follows that, to maintain equilibrium, the impulse or opposing force must be obtained from the reaction of a larger body of the lighter element during a given period; and as in the case of flight the abutment has to be secured upon the yielding air, and the reaction effected by the resistance of an extensive surface, we have to decide what that area must be in proportion to the weight to be sustained.

It may be assumed that the limit can be determined by the condition, that supposing the muscular force of the man or bird should fail, that the wing surface or plane will afford sufficient resistance in a perpendicular descent, while the animal is passive, to prevent him from being injured on reaching the earth. If one square foot of extension be taken for each pound weight, the resistance of the air will limit the rate of descent to twenty-two feet in one second of time; this will be sufficient for safety, as it is the velocity acquired by a body at the end of a fall of eight feet—a height from which an active man may

leap down with impunity. It has been ascertained that this area of one foot for each pound is the average wing surface of most flying animals. It must, however, be borne in mind that large wing surface does not indicate great facility of flight, as some of the swiftest and most enduring flyers have only half that area; let the argument, therefore, be based upon the proportion of one pound per square foot of surface. If this is arranged in the form of a parachute, and the total weight of the man and apparatus be taken at 200 lbs., we then have this weight overcoming the resistance of the atmosphere at a falling speed of twenty-two feet per second, or 1,320 feet per minute. This gives us a definite measure of units of force, generally estimated at what is termed "foot-pounds," that is the total force, weight, or resistance in pounds, multiplied by the rate or velocity in feet per minute. By so multiplying these given quantities we have the enormous force exerted of 264,000 foot-pounds, and dividing this by the Watt standard of horse-power, viz. 33,000 lbs. raised one foot high per minute, there results eight horse-power, or about the strength of forty men. Now the whole of this force is represented by the action and reaction of the opposing bodies—the resistance of the plane to the air, or conversely the air to the plane, for precisely the same amount of power would be consumed if the weighted plane were itself stationary and the air rushing against it at the rate of twenty-two feet per second. This eight horse-power, therefore, represents the force expended, and that would be required to keep the body weighing 200 lbs. sustained at a uniform height in air, on an area of the same number of square feet.

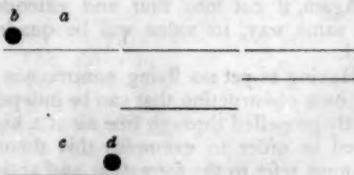
If the estimate is taken with another area, the result will differ. With half a square foot per pound the descent will be about 1800 feet per minute, and the power expended nearly equal to that of eleven horses. Let us advance into the other extreme, and allow for the 200 lbs. a surface of 43,560 square feet—equal to *one acre* in extent. The descent would now be very slow—about one mile per hour, or eighty-eight feet per minute, and the force expended nearly equal to half a horse-power. We thus see that not by any practicable extension of surface is it possible for man to raise himself perpendicularly in air by his own muscular force, the data having been

taken under the most favorable estimate, without deducting for loss arising from the friction of a motive machine.

This may be conformable to the opinion of the large class of antivolants, and is consistent with the assertion of some who are professed scientists; but the argument does not end here, for the conditions named do not truly represent any form of flight, which strictly means one of horizontal progress. Many of the gallinaceous birds located in forest tracts, by aid of wings of the largest area and a great temporary exertion of strength, are able to raise themselves nearly perpendicularly into the branches above, but they are so incapable of taking long flight that when pursued in an open country they prefer running to flying as a means of escape.

Numerous experiments have been made by man to raise himself by various machines perpendicularly in air, but they have all failed; and this about represents the summary of all that has yet been done in the science of aeronautics by mechanical means only.

Another effect remains to be considered. Instead of allowing the weighted plane to fall perpendicularly, let it be moved rapidly in a horizontal direction while still free to descend. The rate of descent under these circumstances would be immensely retarded, according to the speed given. A fresh, unmoved stratum of air quickly acted upon every instant with its inertia undisturbed offers great resistance to deflection, and from this cause, at a very high speed, affords a nearly solid support. This condition serves to explain the mystery, and involves the true principle of flight, which depends not upon large area, but on the width of the stratum, and consequently *the weight of air passed over in a brief time*. All the data for exact calculations are yet wanting. If the air were



non-compressible, like water, an accurate result could be foretold of the lifting force of inclined surfaces; but air being elastic, a formula is required differing from that

applicable to a dead weight, and therefore the theory can only be put forth in demonstrative forms. Let *a* be a plane surface in the form of a *square*, and while constrained to a horizontal position during descent, let a weight or ball (*b*) be set at one extremity. The fall through air in a given period to be from *a* to *c*. But during the descent let the ball have a horizontal course at the top of the plane from *b* to *d*; of course, in this case, the rate of descent will not be altered whether the ball is stationary or in motion—it is simply a question of area and relative weight. But suppose the velocity of the ball is doubled, so as to carry it over a space equal to the end of a second similar plane, the ball will then descend only half the distance in the same time. If the velocity is trebled, so as to carry it on as far as the end of plane No. 3, the ball will fall only one-third the distance; and so on with a reduction of fall proportionate to the rate of traverse. This is illustrative of the influence of a high horizontal speed on the rate of fall, but it may also be demonstrated how this rate of fall at the same speed may be greatly reduced by the form and disposition of the surface, relative to the direction of motion.

The foregoing surface is assumed as a *square*, but suppose this to be cut in half and the two lengths added end to end transversely to the line of motion, the area remains just the same as before, and the fall will still be from *a* to *c*, while the ball passes only half the distance; but let the ball travel at the same speed as on the first plane, it will then pass over another similar elongated element of only half the width, and take double the time to descend to *c*; or, in other words, by this disposition of area the supporting power of the surface will be increased nearly two-fold.

Again, if cut into four and extended the same way, its value will be quadrupled.

Having as yet no flying contrivance of our own construction that can be independently propelled through free air at a high speed in order to exemplify this theory, we must refer to the formation and action of a bird's wing for a working example. The most remarkable one is the wandering albatross. This extraordinary bird is found thousands of miles away from land, and may be said to live in the air for in

stormy weather it never rests on the ocean, but gathers up the floating substances that serve it for food during flight. The wings extend fifteen feet from end to end, and are only eight and a half inches in width at the broadest part. The bearing afforded by such a wide stratum of air may be considered as almost an unyielding one at the usual rate of speed, and in consequence it is able to swoop down, and rise again apparently to the same height, by the mere momentum of its own body, with no aid by the impulses of the wing. The bird could not perform this feat if its aerial support was a rapidly yielding one, but would require to flap diligently in order to regain its former level.

The albatross also affords the best visible indication of the power consumed for maintaining its flight. Many observers have declared that in straight flight it apparently never moves its wings at all—at least, in the rapid flapping manner of smaller birds—and this seems to crown the mystery; for if there is mechanical force exerted, it should be indicated by some form of motion. But the term "stationary wings" must be taken in a modified sense in this case, for the strokes may be too slow to be perceptible. It cannot be supposed that a few deliberate strokes, a foot or so in extent each minute, will propel the bird with a force not much exceeding that exerted by a lady's fan in still air; but the conditions are in reality widely different. If the bird, as a fixture in still air, were to wave its wings slowly in a stroke of twelve inches, the power and also the effect would be inappreciable, not greater than the fan; but when the bird is traversing the air, say at the rate of thirty miles per hour, instead of exerting a trifling force on one foot perpendicular of air, during a rate of ten waves per minute, each stroke passes over a stratum of *two hundred and sixty-four feet* of air, and this, having its momentum undisturbed from the same law of reaction that applies to the support, must also give nearly a solid abutment for propulsion.

Taking the albatross as a model for the utmost perfection in the principle of animal flight, the question of the possibility of imitation has to be considered. The mechanical action of the wing is not complicated. This bird does not find support upon the air by a series of downward

impulses by means of any wing action or mechanism that gives a bearing only during the down stroke, and without resistance in the upward one, for the weight of the bird is equally sustained during the time of both the rise and fall—the wing, in both cases, being inclined upwards so that the rush of air against the inclined plane represented by the under surface causes a continuous and equable support. This is regulated by the sense of feeling of the bird, which, conscious of its own weight and the proper movement required for support, is able instantly to adapt the position of its wings, under all conditions of flight, so as to carry it securely. The faculty of propulsion requires no particular muscles for its performance, as it is an inherent property in the formation of the wing itself—the fore edge being in all cases rigid, and the backward part consisting of the elastic ends of a row of feathers, which, in slightly yielding, acts upon the air as a propeller, like the waving tail of a fish in water. This action may be seen, and the effect felt, by waving the dried extended wing of a large bird.

The foregoing theory fully accounts for the necessity of lateral extension of wing in all birds of prolonged flight; and in all attempts at imitation, where economy of motive force is a chief desideratum, the principle must be borne in mind. If the antivolants say dogmatically that flight is impossible, on an assumed insufficiency of power compared with the weight of the machine, far more reasonably may they use the term on any attempt to imitate the flying mechanism of the albatross, for in this respect they may be quite right.

If near one foot in length of wing is required for every two pounds that the bird weighs (it has more than this), the comparison will be, that if a man and machine weigh together only 300 lbs., he will require an extent of wing of 150 feet from end to end. Very little consideration will show this to be utterly impracticable. Let the machine be constructed of the lightest trussed work that can be contrived, with the smallest margin of strength, it will necessarily be exceedingly heavy, and present so much resistance to the air that excessive power would be required to propel it, and by reason of its rigidity it would probably be destroyed by collision with the ground at the very

first experiment. It is the very elastic jointing of the wing of an albatross that constitutes its safety; were it one long, taper, thin, tubular bone, the least violence would cause fracture; but the wing, by the feeling of the animal, is caused to yield to circumstances, and can instantly be drawn away from risk of accident.

These wings having been considered in their action as mere inclined planes, whose purpose and intention is to obtain a bearing upon a very wide stratum of air, then it follows that this stratum need not extend out in one line, but may be taken in different planes in superposed positions. It can readily be imagined that a dozen of these birds might fly at the same speed, at a certain distance one above the other, as if linked together, the weight of whose united bodies would not exceed that of a man and machine. This would be no violation of the principle herein described, and affords some chance for the construction of a very light and strong machine. A man might thus be sustained on a series of twelve wings or planes, not exceeding in length those of the albatross. These aeroplanes could be stretched by very light laths, merely for the purpose of keeping their surfaces flat, and connected with each other by a system of cords only, as the pressure of the air beneath them would cause them to rise free of each other. Nothing in the shape of a long heavy spar would be needed, as the cords of suspension for the whole system of aeroplanes could be brought down or converge at an angle to near the body of the machine. These surfaces are merely for support, and receive no motion. The propellers would be a detached and separate affair—either as two long rods vibrating vertically, with elastic blades yielding backwards from the line of motion, like a bird's wing, or the arrangement might rotate like two vanes of a windmill or screw propeller.

The experiment of the great lifting power of superposed planes has been tested repeatedly, by stringing a number of paper toy kites one above the other—the string then assumes a less inclined position; the total weight is small. They are, of course, strong enough, and, if in sufficient numbers, will readily lift a man; but, in a rough arrangement of this description, the conditions of resistance are too great to enable him to propel himself,

when raised from the ground, with a force equal to the pull of the spring, which, if very long, in itself exposes a large area to the wind.

The bodies of all swift flyers are formed of such a figure as to cause but little impediment against the air in the line of motion, and the greatest possible amount to

vertical descent. These conditions would have to be considered in all artificial flying arrangements by disposing the material in a position that will offer the least forward resistance, like in the flight of an arrow, with all the front edges of the various parts made conical or wedge-shaped.—*Popular Science Review*.

MR. RUSKIN ON MR. RUSKIN.

MONTAIGNE begins his famous essay "Of Coaches" with Lucretius, and ends it with Atahualpa. But he is not more discursive than Mr. Ruskin, who ranges in a few pages of *Fors Clavigera* from Croydon to Assisi, and from his aunt at Perth to Ariadne in Naxos. Yet comparing Mr. Ruskin with Montaigne would at first sight appear like drawing a parallel between Socrates and the author of the maxim about men who have brains and no money. Mr. Ruskin has, however, in an eminent degree one of Montaigne's most prominent characteristics. He can interest a wide circle of readers in mere personal details. He can write long passages with no very apparent drift, yet be sure to be read to the end. He carries you back and forward in time, and up, and down on the earth, at his will. Almost everybody disagrees with him. It matters little to him, though he sometimes refers to the fact with regret. He is, in one sense, as egotistical or self-satisfied as Montaigne. Mr. Ruskin uses himself, his peculiarities, his tastes, his misfortunes, his disappointments, his pleasures, his recollections, as the one never-failing source of illustration for whatever subject he may discuss. In this he has caught to a nicely the manner of the French essayist, and we have no fault to find with him for it. Mr. Ruskin is an interesting person, and sooner or later what he does will have to be recorded with care, and will form a subject for the writers of important books. It is well, therefore, that he gives us fragments of autobiography in his lifetime. Would that Mr. Mill had done the same! But Montaigne apart from his essays was nobody. He cannot have felt in his lifetime that the account he gives of himself would ever be very interesting to any one except as illustrating the matter in hand. With Mr. Ruskin it is different. He is already a man of sufficient mark to make it a sub-

ject of considerable interest to a large circle to know whether he takes sugar in his tea or likes cats. He must be quite aware of this. We cannot tell whether *Fors Clavigera* has a wide circulation, and is a great success, commercially; indeed, we more than suspect, and Mr. Ruskin all but tells us, that it is not. But it has a circulation, and a certain number of people take it and read it with avidity. Mr. Ruskin perhaps feels like the curate whose congregation on a wet Sunday amounted to two people, and who gave them his best sermon, feeling they were entitled to it for their zeal in braving the rain. But Mr. Ruskin's audience crave for personal knowledge of the object of their admiration. They wish to know all about his birth, parentage, and education. They desire information as to his fortune, and like to hear how his money is invested. They would pry into the origin of his family and inquire after his maternal grandfather. And the supply equals the demand. Mr. Ruskin is indulgent. He gives them, to use his own words, so much of autobiography as it seems to him desirable to write. *Fors Clavigera* is the acknowledged channel by which the appetite he has created is to be appeased; and we need make no apology for venturing to recall what he has so far made known, and for endeavoring to place these autobiographical notes in a chronological and regular order. They are scattered through the forty-six numbers which up to the present time have been published. They occur *adpropos* of art, science, history, religion, and political economy. They are not dragged in, but seem to come naturally and as if by virtue of a fixed law. When at Christmas he laments the excessive infant mortality of our large towns, and quotes newspaper statistics to show the effects of employing women in factories, he incidentally informs us that his mother soothed his youthful slumbers

with "Hush-a-bye, baby, upon the tree top"; and he adds a memory of the dawning intelligence which objected to a defective rhyme in the first two lines. So, too, when in August he copied a part of a fresco by Simon Memmi in the Duomo of Florence, he took occasion, as he described the King, the Pope, and the Emperor, to tell us that his maternal grandmother's inn bore the sign of the "Old King's Head." It is while lecturing squires that he informs us that his mother was a sailor's daughter, and his aunt a baker's wife. A year ago, writing of Sir Walter Scott's early training, he told us how he himself was taught to read; and, a month ago, he described the pleasure he derived from lingering in his aunt's bakehouse, and said he was reminded of it by the Sacristan's cell at Assisi. Mr. Ruskin talks constantly of himself, yet he is not selfish. His egotism is like the innocent egotism of a child which always supposes the whole world to be concerned in the sad story of a bruised elbow or a broken toy. We must all sympathize with the inevitable "least shade of shyness" which increasing prosperity drew between Hunter Street, Brunswick Square, and Market Street, Croydon; and we cannot but rejoice when the family goes again to visit the homely aunt, to walk "on Duppas Hill and on the heather of Addington."

Mr. Ruskin's father, he tells us in the tenth number of *Fors*, began business as a wine merchant with no capital and a considerable amount of debt bequeathed by his grandfather. He paid his debts and made money, and his son has written on the granite slab over his grave that he was an "entirely honest merchant." There is a charming passage about his travels through England with his father, the books he used to read, the pictures he used to see, and how early he discovered the political truth that it was better to live in a small house and have Warwick Castle to be astonished at than to live in Warwick Castle and have nothing to be astonished at. Indeed, he goes further in this connection, for he adds that he is obliged to refuse many kind invitations to America because he could not, even for a couple of months, live in a country so miserable as to possess no castles. In his twenty-fourth letter we have an account of his surname. He does not like the look of it, he says, because, as he apprehends, it is only short

for "Rough Skin" in the sense of "Pig-skin;" and he cannot find historical mention of any other form of the name, except in a place to which he has lost the reference, as that of the leading devil of four, Red-skin and Blue-skin, and he forgets the skins of the other two, who performed in a religious play of the fourteenth century. This derivation can hardly be taken seriously, but Mr. Ruskin gives no indication in the context of any intention of joking. If there is any doubt that Ruskin means "little Russ," or Russian, it may be derived from a diminutive of Ralph, innumerable forms of which exist. Mr. Ruskin's father had a taste for art, and as to his other relations, we read that, besides the baker's wife of whom we have spoken, he had an aunt married to a tanner; and that there used to be a greengrocer of his name in a small shop near the Crystal Palace. His maternal grandfather went to sea at Yarmouth, and was killed when two-and-thirty years of age "by trying to ride instead of walk into Croydon; he got his leg crushed by the horse against the wall, and died of the hurt's mortifying." He was engaged, as Mr. Ruskin believes, in the herring trade, but we are not told his name. He appears to have entertained the prevalent notions of his day as to matters of family discipline, for though he spoiled his two daughters when he was at home, he could not forgive any tendency to equivocation, and the future Mrs. Ruskin, having once told him a lie, was whipped with a bundle of new broom twigs, but we have the satisfaction of knowing that it did not hurt her, though she "thought a good deal of it." There is also an aunt of whom he tells, in Letter X., that she lived in the town of Perth, gave him cold mutton on Sundays, but had a garden full of gooseberry bushes. What this last particular implies can only be known to those fortunate persons who have tasted gooseberries where they grow in perfection. If nightingales are only to be heard south of the Trent, gooseberries can only be eaten north of it. He adds:—"My mother, indeed, never went so far as my aunt, nor carried her religion down to the ninth or glacial circle of Holiness, by giving me cold dinner, and to this day I am apt to overeat myself with Yorkshire pudding, in remembrance of the consolation it used to afford me at one o'clock. Good Friday also was partly 'intermeddled,' as Chaucer

would call it, with light and shade, because there were hot-cross buns at breakfast, though we had to go to church afterwards." Mr. Ruskin's recollections of Sunday do not appear to be of a pleasing character. He asserts that he lost the pleasure of three-sevenths of his life because of Sunday, that he always had a way of looking forward to things, and that a lurid shade was cast over the whole of Friday and Saturday by the horrible sense that Sunday was coming and inevitable.

He very early made up his mind on certain metaphysical questions. Before he was ten years old he had settled for himself responsibility and free will by jumping up and down an awkward turn of four steps, and considering whether it was likely that God knew whether he should jump only three or the whole four at a time. Having settled it in his mind that God knew quite well, though he did not, which he should do, and also whether he should fall or not in the course of the performance—though he was altogether responsible for taking care not to fall—he never troubled his head more on the matter. In another place he gives some description of what he calls strong associative fancy about words. When he was a child the word "crocodile" always seemed to him very terrific, and he would even hastily in any book turn a leaf in which it was printed with a capital C. He complains that no one told him that crocodile only meant "a creature that is afraid of crocuses," but he intends to buy in Paris an artificial crocodile, and to show it to the first lizard he meets in Italy, to see what it thinks of it.

With regard to money matters, Mr. Ruskin is most explicit. He had, when he wrote Letter XVIII., fifteen thousand pounds in Bank Stock, for which he got seven per cent.; but this particular source of income seems to cause him some uneasiness, as he feels sure it represents usury, and the Directors never ask his advice as to their investments, or solicit his superintendence of their affairs. Mr. Ruskin in the Bank parlor is a frightful vision, although he seems able to manage his house property at Greenwich on intelligible principles, and complains just like anybody else at the lawyer's delays in selling some houses. As to his disposal of his income he is equal open. He not only speaks of his seven thousand a year, but tells what he would like to do with it. We really

feel a certain hesitation when we come to these pages. He complains that the Americans will not sell him a black girl, and mentions his wish to buy a white one with a title. No doubt he can obtain money if he goes the right way about it; but he seems to think he has not money enough left after he has fulfilled charitable obligations, and "white girls," he reflects, "come dear, even when one buys them only like coals for fuel." He regrets that he did not live in the days of Joan of Arc, as he would have been willing to give more than ten thousand pounds for her, and would not have burnt her. Many other traits of character he gives us in these notes as to his disposal of money, and on the whole we can say little in disapproval, except of one passage, which is certainly demoralizing according to our modern lights. He dare not, he says, give a penny to a beggar unless he is sure no clergyman is in sight.

We have no intention of sneering at *Fors Clavigera*, but it is impossible to judge of Mr. Ruskin on ordinary grounds of criticism, literary or moral. He takes up a position wholly outside the pale of everyday thought. Much of what he says is interesting only because he says it. Many of the anecdotes are important only as betraying the bent of his mind. Whole pages are occupied with disquisitions which have no bearing on any question but that of Mr. Ruskin's standing as an English writer. On the other hand, there are passages full of poetry, of philosophy, of religion, and of art, passages such as no other living author could compose, eloquent and full of meaning, stirring men up to exertion, raising them above sordid considerations, brightening their hopes, and guiding their aspirations. Then, suddenly, comes some remark so exceedingly trivial, or some piece of political or social economy so exceedingly visionary, that the whole of what goes with it is marred and tainted. It is often difficult, and sometimes impossible, to see why discordant notes are introduced into the piece. It is not easy to say what purpose is served by recording that Mr. Ruskin likes to have two servants with him when he travels, that he is fond of a dish of game, that he eats strawberries and cream with pleasure, that he once learnt twenty-six chapters of the Bible, and that he contemplates the use of a hair shirt with disfavor. Many people who admire or

wonder at his writings will like to know that Mr. Ruskin is fifty-five years of age, that he eats his breakfast sulkily when correcting final proof sheets, and is not able to correct them at all within hearing of a steam whistle or within sight of a rainbow. But it is a question how far he is right in gratifying this kind of curiosity. He ministers to a depraved taste in doing so. People are self-conscious enough, and meddling enough, at the present day, without encouragement from one who assumes to teach everybody. He tells us that he has endeavored in vain to read a sensational novel on strikes; that when an old woman sold oranges at three a penny he gave her a penny a piece; that gas makes his headache, a peculiarity which he shares with all Londoners, we suspect; he declares himself to be misunderstood, which we do not doubt; to be ill-tempered; to have few early friends remaining; to be discouraged and disappointed. His servants make him enormous fires on warm days, and he is unable to persuade his cook to concoct the famous goose pie after the old recipe, "written purely from practice and dedicated to the Hon. Lady Elizabeth Warburton," in 1791; one day she wants a new oven, another day she has conscientious scruples as to the extravagance of the pie, and a third she does not feel well enough to undertake it at all. So much the better for Mr. Ruskin's di-

gestion, as any one will agree who reads the prescription given in the twenty-fifth number of *Fors*. Mr. Ruskin is also greatly exercised because Messrs. Howell and James sent him circulars about silks which they have to sell at an alarming sacrifice; because penny cookery-books come to him by post, and, above all, because an old friend asks him to read a text every morning in what he calls a Sausage-book. In the eleventh letter he gives a full account of his residence at Denmark Hill, including a statement of the rent he paid, the number of men he employed, the shrubs he grew, and the azaleas he presented to young ladies. He tells his readers several things about his character too, some of which they could hardly have guessed; but once such note deserves, from its wholly unexpected nature, particular observation. In the number of *Fors Clavigera* which opened the present year we read that Mr. Ruskin considers himself a very different person from what most people, even of his friends and admirers, would suppose. His great difficulty—these are his own words—of late, whether in lecturing or in writing, is in the intensely practical and matter-of-fact character of his own mind, as opposed to the loquacious and speculative disposition, not only of the British public, but of all his former friends.—*Saturday Review*.

BRITISH ASSOCIATION, 1874.

NOTES OF THE PRESIDENT'S ADDRESS.

IN the very beginnings of science, the parsons, who managed things then, Being handy with hammer and chisel, made gods in the likeness of men; Till commerce arose, and at length some men of exceptional power Supplanted both demons and gods by the atoms, which last to this hour. Yet they did not abolish the gods, but they sent them well out of the way, With the rarest of nectar to drink, and blue fields of nothing to sway. From nothing comes nothing, they told us, nought happens by chance, but by fate; There is nothing but atoms and void, all else is mere whims out of date! Then why should a man curry favor with beings who cannot exist, To compass some petty promotion in nebulous kingdoms of mist! But not by the rays of the sun, nor the glittering shafts of the day, Must the fear of the gods be dispelled, but by words, and their wonderful play. So treading a path all untrod, the poet-philosopher sings Of the seeds of the mighty world—the first-beginnings of things; How freely he scatters his atoms before the beginning of years; How he clothes them with force as a garment, those small incompressible spheres! Nor yet does he leave them hard-hearted—he dowers them with love and with hate, Like spherical small British Asses in infinitesimal state;

Till just as that living Plato, whom foreigners nickname Plateau,
 Drops oil in his whiskey-and-water (for foreigners sweeten it so),
 Each drop keeps apart from the other, enclosed in a flexible skin,
 Till touched by the gentle emotion evolved by the prick of a pin :
 Thus in atoms a simple collision excites a sensational thrill,
 Evolved through all sorts of emotion, as sense, understanding, and will ;
 There is nobody here, I should say, has felt true indignation at all,
 Till an indignation meeting is held in the Ulster Hall ;
 Then gathers the wave of emotion, then noble feelings arise,
 Till you all pass a resolution which takes every man by surprise.
 Thus the pure elementary atom, the unit of mass and of thought,
 By force of mere juxtaposition to life and sensation is brought ;
 So, down through untold generations, transmission of structureless germs
 Enables our race to inherit the thoughts of beasts, fishes, and worms.
 We honor our fathers and mothers, grandfathers and grandmothers too ;
 But how shall we honor the vista of ancestors now in our view ?
 First, then, let us honor the atom, so lively, so wise, and so small ;
 The atomists next let us praise, Epicurus, Lucretius, and all ;
 Let us damn with faint praise Bishop Butler, in whom many atoms combined
 To form that remarkable structure which it pleased him to call—his mind.
 Last, praise we the noble body to which, for the time, we belong,
 Ere yet the swift whirl of the atoms has hurried us, ruthless, along,
 The British Association—like Leviathan worshipped by Hobbes,
 The incarnation of wisdom, built up of our witless nobs,
 Which will carry on endless discussions, when I, and probably you,
 Have melted in infinite azure—and, in short, till all is blue.

Blackwood's Magazine.

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 LITERARY NOTICES.

HOLIDAY BOOKS.

THE comparatively few books designed specially for the holiday season that have been published this year would seem to indicate that the publishers have no very great confidence in the "revival of business"—at least in this department of their trade. Two or three years ago, a bare catalogue of the "holiday books" would have filled a large portion of one of our pages ; but tolerably full notices of all that we have received this season—comprising nearly all that have been announced—will not encroach very largely upon our space. It is to be hoped that this is attributable to the general depression of business rather than to a disposition on the part of buyers to search for their presents in other directions. To our mind, there is no gift, whether designed as an expression of affection, or merely as a compliment, so entirely appropriate as a book ; and certainly nothing more elegant than one of the better class of holiday books can be obtained for so small an amount of money.

One of the choicest and freshest books on our table is Longfellow's *Hanging of the Crane*. (Boston : J. R. Osgood & Co.) The poem, which forms its literary feature, would fill no

more than two or three of the closely-printed pages of a magazine, but it is an entirely satisfying treatment of its subject, and is more likely to become a general favorite than any other of the author's recent productions. The theme is the family and family life ; and in a series of panoramic pictures, which the poet sees in a vision, we follow the leading incidents of this life, from the "fortunate, happy day, when a new household finds its place among the myriad homes of earth," to that latter time when, at the Golden Wedding,

"The ancient bridegroom and the bride,
 Serenely smiling on the scene,
 Behold, well-pleased, on every side
 Their forms and features multiplied,
 As the reflection of a light
 Between two burnished mirrors gleams,
 Or lamps upon a bridge at night
 Stretch on and on before the sight,
 Till the long vista endless seems."

The entire poem was evidently written *con amore*, and touched up to its present exquisite finish with a tender solicitude. There are passages which will strike a sympathetic chord in the bosom of every reader, which, the moment they are read, take their place in our consciousness rather as an expression of personal experience than as the record of another.

er's thought. One of these passages we can not refrain from quoting :

"Seated, I see the two again,
But not alone ; they entertain
A little angel unaware,
With face as round as is the moon ;
A royal guest with flaxen hair,
Who, throned upon his lofty chair,
Drums on the table with his spoon,
Then drops it careless on the floor,
To grasp the things unseen before.
Are these celestial manners ? these
The ways that win, the arts that please ?
Ah yes ; consider well the guest,
And whatso'er he does seems best ;
He ruleth by the right divine
Of helplessness, so lately born
In purple chambers of the morn,
As sovereign over thee and thine.
He speaketh not ; and yet there lies
A conversation in his eyes ;
The golden silence of the Greek,
The gravest wisdom of the wise,
Not spoken in language, but in looks
More legible than printed books,
As if he could but would not speak."

The illustrations are numerous, occupying considerably more space than the text itself ; and they do what pictures of this kind seldom succeed in doing—they really draw out, elaborate, and emphasize the poet's meaning. Most of them are by Miss Mary A. Hallock, to whose share has fallen all the figure pieces ; and she exhibits in this difficult department a vigor and vividness of conception, and a delicacy of execution, which entitle her to rank henceforth among the best of American engravers. The only portions of the pictures which she has contributed to this volume that are failures—that are less than good—are her child-faces. These are as wooden, as expressionless, and as ill-proportioned as any of those to which the shop-windows accustom us at this time of the year. The landscape pieces are by Mr. Thomas Moran, and are of the well-known excellence of that artist's work. Besides the regular illustrations, there are a great many emblematical and ornamental vignettes, some of which are very beautifully drawn.

The elaborate article in our last month's number renders it unnecessary for us to say more concerning the literary character of *Vers de Société, Selected from Recent Authors*, by Charles H. Jones (New-York : Henry Holt & Co.) than that the goodly-sized volume contains a fairly complete collection of the best *vers de société*, from about the beginning of the century to our own time. The century, indeed, has been stretched back far enough to include Praed, Landor, and Moore, and toward the latter part of the volume will be found the names of poets who have just begun to make a reputation, or whose reputation will be

made when the present generation has grown old. The book itself, apart from its contents, is perhaps the daintiest and most elegant specimen of book-making that America has yet achieved. The illustrations are not numerous ; but the paper, printing, binding, and ornamentation are most artistic, while the size of the volume—a large, thick quarto of 416 pages—sets off every thing to the best advantage. The binding in particular is novel and highly appropriate—giving a foretaste, as it were, of the dainty things within. In the upper right-hand corner of the front cover, Cupid, with crush hat, gloves, and opera-glass, reclines, supported by a vine of morning-glory. This vine passes downward across the cover, and across the back to the lower left-hand corner of the under cover, where Mr. Holt's owl is clinging to it with solemn and owl-like tenacity. On the back of the book, a half-open fan hangs from the morning-glory vine, and on the front cover a domino-mask. The whole design is stamped in deeply in gilt, contrasting brilliantly with the colored cloth.

The same firm (Henry Holt & Co.) publish a new edition of Taine's *Tour Through the Pyrenees*, illustrated by Gustave Doré. This beautiful and entertaining book was published for the holiday season of last year, but the demand for it swept the edition out of print in so short a time, that the present edition will be substantially a new work to many purchasers. A detailed notice of the book may be found in the ECLECTIC for January, 1874.

Besides Bryant's "Among the Trees," noticed in our last number, Messrs. G. P. Putnam's Sons (New-York) publish a holiday edition of Mrs. Nathaniel Hawthorne's "Notes in England and Italy," one of the most unpretending and at the same time one of the most enjoyable records of foreign travel that has appeared in recent years. Mrs. Hawthorne had none of her husband's subtlety of insight and exquisite literary art, but she looked upon many of the things best worth seeing in England, Scotland, and Italy, with keenly-observant eyes and intelligent sympathy, and in these "Notes" she has written down her impressions of them with all the frank simplicity characteristic of a private journal. Architecture, sculpture, and painting seem to have interested her most, and of the great masterpieces in these kindred arts, the reader will find here some fresh and appreciative descriptions. The book is beautifully printed, with that creamy tint of paper and breadth of margin which are so pleasing to the eye. The illustrations consist of ten full-page steel engravings.

For quite little folks, we have seen nothing for a long time more attractive than *The Little Folks' Picture Gallery* (New-York: The American News Co.) The book is so large that it will stay open by its own weight (a very important point in picture-books designed for children), and there is an illustration on each page. Some of these illustrations are excellent in every respect, and all of them are of a kind to attract the attention of young children. A few rhymed verses under each serve to explain the picture.

Rhymes and Jingles, by Mary Mapes Dodge (New-York: Scribner, Armstrong & Co.), though copiously and amusingly illustrated, will attract chiefly through its verses. These are similar to Miss Rossetti's "Sing-Song" nursery rhymes, and are equally good; some of them indeed deserving a permanent place in nursery literature. The book is adapted for children of all ages, not excluding their mothers and grandmothers, to any of whom, doubtless, it would prove pleasing.

Mr. Frank R. Stockton's *What Might Have Been Expected* (New-York: Dodd & Mead), though not designed especially for a holiday book, is good enough for any season, and ought to add to the happiness of every boy or girl into whose hands it is put, even at Christmas-time. It is a thoroughly good story—interesting, instructive, wholesome, and true to life. A few of the incidents, perhaps, are a little overstrained, and the local coloring is laid on rather thickly for perfect art; but these are minor blemishes in a work which we can recommend for a place on the shelf beside the same author's "Roundabout Rambles," Mrs. Dodge's "Hans Brinker," "Alice's Adventures in Wonderland," Miss Alcott's books, and the two or three other first-rate additions that have been made in recent years to juvenile literature. The volume is well illustrated by artists of reputation.

FOREIGN LITERARY NOTES.

MR. F. J. DICKENS, son of the late novelist, is now in Ottawa, and will probably reside there permanently.

JUAREZ, the late President of Mexico, has left in MS. an interesting autobiography, which is to be shortly published.

MR. KINGLAKE's fifth volume of the "History of the Crimean War," which deals principally with the battle of Inkerman, has, it is stated, been sent to press by Messrs. Blackwood.

In his preface to his edition of Milton's *Poetical Works*, just published, Professor Masson

informs us that Colonel Chester has discovered the burial register of the young physician, Charles Diodati, the hero of the "Epitaphium Damonis." He was buried at St. Anne's, Blackfriars, August 27, 1638.

THE remains of Calderon, the great dramatic poet of Spain, have just been transferred, with great ceremony, from the Church of San Francisco, in Madrid, to the cemetery of St. Nicholas. In the evening, the National Theatre played "Life is a Dream," the most celebrated work of the deceased.

M. GUILLAUME GUIZOT, son of the illustrious statesman, has been lately in London, engaged in making researches with respect to early English literature, especially that of the Chaucer period, on which he is about to deliver a course of lectures at the Collège de France.

THE tariff of payment for French novelists of thirty years since, is curious to look back upon. Alexandre Dumas was paid 10d. for every sixty words, Frederick Soulié got 1s. a line, while Balzac received three centimes a word. Some journalists, however, murmured loudly at the length of Balzac's descriptions, and one paper decided that "M. de Balzac could not be allowed to put in more than thirty nails to each of the chairs he was pleased to describe."

A SOCIETY for the protection of literary property and dramatic art has been formed in Russia. The statutes of the society are drawn up on the communistic principle that the productions of every one of the members shall benefit the whole society. The latter have to keep up relations with all the managers of theatres, and sell them the right of producing new dramas. The royalty goes into the society's cash-box, and the authors receive the percentage granted by the general meeting of the society.

PROFESSOR WAGNER, of Hamburg, has finished his great collection of the earliest works of Modern Greek Poetry, in which he has printed above 9,000 lines for the first time. Dr. Wagner has also just finished a careful reprint of Bentley's famous *Dissertations*, in the original spelling, with an introduction and notes. Dr. Wagner thinks of reprinting the very rare, if not unique, 1595 edition of "Akilia Philopatheus Loving Follie. . . . at London, printed by R. R. for William Matter, dwelling in Fleet Street at the signe of the hande and plough," 1595. The earliest edition known to Corser, Collier, and Hazlitt, is that of 1603.

WITH reference to Mill's Essays on Religion and to the editor's prefatory remark, that "the

volume was not withheld by him on account of reluctance to encounter whatever odium might result from the free expression of his opinions on religion," a correspondent of the *Athenaeum* writes:

"Conversing with Mr. Mill, only a few weeks before his death, on the change in public opinion as regards the discussion of religious questions, I remarked that the time appeared to have come when free-thinkers might properly give full expression to their views. I was struck by the vehemence of his answer, 'Yes, quite come.' I did not know that he was then actually planning the publication of the *Essay on 'Nature'*, which he had written fifteen or more years before, or that the 'Theism' was in manuscript, but the peculiar emphasis laid upon his words led me to believe that he was resolved to give public utterance of some sort to the opinions that he never concealed from his friends. He evidently considered that this season of religious 'revival'—taking such diverse forms as Ultramontanism and Ritualism on the one hand, and Spiritualism on the other,—called for some protest against Supernaturalism, as well as that the more or less illogical revolt of so large a portion of the public, apparent in the popularity of books like Dr. Colenso's and 'Essays and Reviews,' needed direction in surer channels than it threatened to take."

M. HIPPOLYTE COCHERY has discovered a curious document, being a certificate of baptism in which the poet Molière appears as godfather. It was found in the archives of the Hôtel de Ville of Paris, and runs thus: "This thirtieth day of the month of March, 1671, was baptized Jean-Baptiste-Claude Jennequin, son of Messire Claude Jennequin, officer of the King, and Mademoiselle Desjales. His godfather is Messire Jean-Baptiste-Poquelin Molière, valet-de-chambre of the King, having no fixed domicile, and the godmother, Géneviève Jennequin.—B. POQUELIN MOLIÈRE, G. JENNEQUIN." This document was extracted from the civil register of the parish of Auteuil, where Molière often went to see his friend Boileau.

A CORRESPONDENT sends to the *Athenaeum* the following extracts from a letter of Barry Cornwall's:

"32 Weymouth Street, 14 Nov. 1870.

"DEAR SIR: I have this morning received your book, and your letter accompanying it. Although I can scarcely write (I am eighty-two), I will try to thank you for it. . . . I observe that names are connected with one or two poems which are familiar to me. There is, for instance, the name of my poor daughter (who died three or four years ago). There is

the name of Tennyson, whom I have long known; and of Lord Byron, whom I remember in my youth. I was, in fact, at Harrow School with him, and with Sir Robert Peel, about the year 1801. You see I speak of every thing in the past tense; so I shall be amongst the past very shortly. That I shall die and be forgotten is one of the consequences of living at all. You will excuse all this vapid nonsense from a man who has lived into his second childhood. . . . Your obliged,

"B. W. PROCTER."

It is strange that among the thousands of biographies of great and little men which have been produced to meet the growing taste of the public for this sort of literature, no real biography of one of our very greatest men has hitherto appeared. Immediately after the death of John Locke, his friend, Le Clerc, published a short memoir of him in the *Bibliothèque Choisi*, and that sketch, though hardly long enough for a magazine article nowadays, was remarkably good of its kind. Translated into English, it satisfied the admirers of Locke for a century and a quarter, until, fifty years ago, Lord King published his much more pretentious "Life." Lord King's two volumes, however, though enriched by many valuable reprints and first prints of extracts from Locke's correspondence and diaries, were, as a biography, little more than a badly spun-out reproduction of Le Clerc's article. During the last four or five generations, of course, numerous stray contributions to Locke's biography have been made by commentators on his writings, authors of books on other subjects, magazine writers, and others. But all these need collecting and sifting, and a great deal of valuable manuscript material has never yet been made use of. We are glad to hear that Mr. Fox Bourne is now working at this subject, with the view of producing a careful and exhaustive life of the philosopher.—*Athenaeum*.

SCIENCE AND ART.

SMALL SIZE OF THE BRAIN IN TERTIARY MAMMALS.—At the last meeting of the Connecticut Academy of Arts and Sciences, Prof. Marsh, of Yale College, made a communication on the size of the brain in Tertiary mammals. His researches on this subject have been mainly confined to the larger extinct mammals which he had obtained in the Rocky Mountain region, and the results are of peculiar interest. The Eocene mammals all appear to have had small brains, and in some of them the brain cavity was hardly more capacious than in the higher reptiles. The largest Eocene mammals are the *Dinoceras*, which

were but little inferior to the elephant in bulk. In *Dinoceras* (Marsh), the type genus, the brain cavity is not more than one-eighth the average size of that in existing rhinoceroses. In the other genera of this order, *Tionceras* (Marsh) and *Unitatherium* (Leidy), the smallness of the brain was quite remarkable. The gigantic mammals of the American Miocene are the *Brontotheridae*, which equalled the *Dinoceras* in size. In *Brontotherium* (Marsh), the only genus of the family in which the skull is known, the brain cavity is very much larger than in the Eocene *Dinoceras*, being about the size of the brain in the Indian rhinoceros. In the Pliocene strata of the West, a species of mastodon is the largest mammal; and although but little superior in absolute size to *Brontotherium*, it had a very much larger brain, but not equal to that of existing Proboscidians. The tapiroid ungulates of the Eocene had small brain cavities, much smaller than their allies, the Miocene *Rhinocerodidae*. The Pliocene representatives of the latter group had well-developed brains, but proportionally smaller than living species. A similar progression in brain capacity seems to be well marked in the equine mammals, especially from the Eocene *Orohippus*, through *Miohippus* and *Ancitherium* of the Miocene, *Pliohippus* and *Hipparrison* of the Pliocene, to the recent *Equus*. In other groups of mammals, likewise, so far as observed, the size of the brain shows a corresponding increase in the successive subdivisions of the Tertiary. These facts have a very important bearing on the evolution of mammals, and open an interesting field for further investigation.

SPONTANEOUS GENERATION FROM A CHEMICAL POINT OF VIEW.—Professor Debus, F.R.S., in delivering an address before the British Association at Belfast, said that one of the most perplexing problems in physiological inquiry was the question, What is the origin of the lower forms of life which are supposed by some to be formed spontaneously from inorganic material? He proposed to consider the question entirely from the chemist's point of view. The question was, Was it possible that the lower forms of life could be produced as the mere spontaneous work of inorganic material? Some philosophers believed that such a formation was possible. Darwin, in his work, propounded a certain view about changes which animals underwent when the external conditions under which they lived became changed. By experiments, and drawing conclusions from them, he did not go so far as to assert it was possible that from inorganic matter organic life could be originated. He never said that, though some followers had expounded his theory as going to that length.

He (Professor Debus) thought that this question was really one in chemical science. By inorganic matter, he meant matter that met their senses—as a piece of flint—and by organic matter was to be understood the substances which were found in the bodies of animals and plants. Professor Debus proceeded at some length to consider the question chemically, and concluded by saying that the result of the experiments of chemists was that there were not any conditions favorable to the formation of organic matter from inorganic material; that, on the contrary, life was destroyed when the temperature was raised beyond a certain point; and chemistry also showed that in former ages there did not exist the conditions which would enable organic life to be formed from inorganic matter.

ORGANS OF HEARING IN INSECTS.—At the last meeting of the American National Academy of Sciences, Professor A. M. Mayer exhibited experimental confirmation of the theorem of Fourier as applied by him in his propositions relating to the nature of a simple sound, and to the analysis by the ear of a composite sound into its elementary pendulum-vibrations; and to show experiments elucidating the hypothesis of audition of Helmholtz. Placing a male mosquito under the microscope, and sounding various notes of tuning-forks in the range of a sound given by a female mosquito, the various fibres of the antennae of the male mosquito vibrated sympathetically to these sounds. The longest fibres vibrated sympathetically to the grave notes, and the short fibres vibrated sympathetically to the higher notes. The fact that the nocturnal insects have highly organized antennae, while the diurnal ones have not, and also the fact that the anatomy of these parts of insects shows a highly developed nervous organization, lead to the highly probable inference that Prof. Mayer has here given facts which form the first sure basis of reasoning in reference to the nature of the auditory apparatus of insects.

APPLICATION OF THE SAND-BLAST TO MICROSCOPY.—An application of the sand-blast to scientific purposes has been made, which will greatly interest microscopists. It is the hollowing out of cells in plates of glass for objects to be examined with the microscope. In a hollow one-fifth of an inch deep, a whole insect, or part of insect, can be mounted in balsam much more perfectly than in any other way, and any number of such hollows can easily be produced by a very slender blast of sand. The hollow is of course somewhat rough, like ground glass; but, as Mr. Hailes says in a communication to the Quekett Microscopical Club, "this is only an apparent

disadvantage. The refractive index of the balsam is so nearly that of glass, that it causes the granulation entirely to disappear.... For dry or opaque objects, no preparation is necessary, the ground-glass bottom of the cell making a soft and agreeable background for the object." Another advantage in the use of these cells is, that the insects need not be flattened before mounting, and will therefore present themselves to the observer's eye without distortion or loss of structure.

THE NATURE AND NURTURE OF MEN OF SCIENCE.—Not least among the advantages offered by science is the fact, that scientific work must be honest work. The investigator finds that he must work according to the laws of nature, or else fail utterly. During the last session of the Royal Institution, Mr. Francis Galton delivered a lecture "On Men of Science—their Nature and their Nurture," in which, after stating that the ratio of scientific men to the population of England is about one in ten thousand, he shows that the characteristics of those men are energy, health, steady pursuit of purpose, business habits, independence of character, and a strong innate taste for science. These qualities are strongly marked; hence, in addition to the laws of nature, we see a reason why scientific work should be honest work. But among them health stands conspicuous. Mr. Galton records two of the answers he received to his inquiries on this particular—"Only absent from professional duties two days in thirty years; only two headaches in my life;" and "Never ill for more than two or three days except with neuralgia," the latter being from a man between seventy and eighty years of age. "It is positively startling," says Mr. Galton, "to observe in these returns the strongly hereditary character of good and indifferent constitutions." He finds reason to believe that marriages of unhealthy men and women are not infrequent; and he adds, "these returns seem to show that the issue of such marriages are barely capable of pushing their way to the front ranks of life. All statistical data concur in proving that healthy persons are far more likely than others to have healthy progeny; and this truth can not be too often illustrated, until it has taken such hold of the popular mind, that considerations of health and energy shall be of recognised importance in questions of marriage, as much so as the more immediately obvious ones of rank and fortune."

HYDRAULIC POWER ON BOARD SHIPS.—Of late years, steam-power has been employed to load and unload large ships; the steam is conveyed in pipes to different parts of the vessel, and does its work in a wasteful and

noisy way. It has been shown in a paper, read before the Institution of Civil Engineers, that water-power is much better suited for the purpose than steam-power; that loading and unloading, hoisting the anchor or sails, warping the ship into dock, steering, stoking, discharging ashes, and so forth, can all be done quickly and quietly with a proper hydraulic apparatus. The power is supplied from an accumulator, into which water is forced from the engine-room, and is thence led in small pipes to the working apparatus. With this the engines of ship may be reversed in three seconds; a large ship can be steered by a boy; and in a vessel of three thousand tons, the rudder can be put over from midships to hard a port or starboard in sixteen seconds; in unloading, four ropes running one hundred and eighty-seven feet per minute, can be worked from one hatchway, and without noise. With such capabilities as these, the hydraulic machinery can hardly fail to be brought into use at all our principal trading ports.

DR. HOOKER ON CARNIVOROUS PLANTS.—Dr. J. D. Hooker's recent address to the Department of Zoology and Botany of the British Association, gives the result of his study of the carnivorous habits of the *Nepenthes*, the pitcher plants of the East Indies, and supplements what was already known of like habits in *Dionaea*, *Sarracenia*, *Drosera*, *Darlingtonia*, and *Pinguicula*. He states that the rim of the pitcher and the under side of the lid, always more highly colored than the rest of the plant, are provided with numerous honey-secreting glands, while the surface immediately below is covered with a glass-like cuticle which affords no foothold to insects. The entire lower portion of the cavity is occupied by innumerable spherical glands which secrete a fluid that is always acid and is found in the pitcher before the opening of the lid. The digestive powers of this fluid were tested in various ways, often with surprising results. Fragments of meat were rapidly reduced, and pieces of fibrin weighing several grains dissolved and totally disappeared in two or three days; lumps of cartilage weighing eight to ten grains were half gelatinized in twenty-four hours, and in three days were greatly diminished and reduced to a clear transparent jelly. The experiments make it probable that these results are not wholly due to the original fluid, but that after the addition of the animal matter a substance acting as pepsine is produced by a change in the process of secretion. Dr. Hooker shows the analogy which exists between this mode of plant-nutrition and the more ordinary one of the embryo in the act of germination, and of some colorless plants which live by the absorption of the elaborated

juices of others. He also very briefly indicates how the highly specialized organs and strange habits of these plants may be conceived to have arisen by the process of natural selection from ordinary leaf-structures and from processes which are common in the vegetable world. The fact may at least be accepted as proving that the protoplasm of plants can avail itself of the same food with that of animals—thus serving as one more link in the continuity of nature.

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VARIETIES.

ASIATIC JUGGLING.—The next day there was a tremendous crowd to see the juggler, who had established himself in an open space in the middle of the bazaar. He was a fine-looking old fellow, with a long white beard, in a rich Indian dress; and he looked so slim and graceful, and so high-bred, among all these rough, common-looking fellows, that at first I had eyes for nothing else. Then the juggling began; and very clever it was. I'm quite used to it now; but this was my first sight of it, and I was immensely astonished. First, a little girl came forward, and played on a kind of tambourine, and danced to the music. Then the juggler suddenly began to scold her, till she seemed to get frightened, and hid herself under a huge basket which he had put beside him—but he instantly drew his sword and ran it through the basket; there was a loud shriek, and the sword came back all bloody. Then some of the people thought he had really killed her, and ran forward to seize him; but when they lifted the basket, there was nothing there; and presently the girl came running out from somewhere or other perfectly sound. Then there were great cries of "Yakshi, yakshi!" (well done), and when the girl went round with her tambourine, she got as much money as she could hold. Then another man who was with him spread a tent, and the juggler went in. Presently the tent was drawn away, and there was the old fellow sitting cross-legged in the air, with nothing to support him; and the assistant took a sword, and slashed about on all sides of his master, to show that there was nothing there. Then he took a large egg, and, laying it on a board, struck it with his sabre, without doing it the least harm. Then he told one of the spectators to pick it up; but although the man took it as carefully as he could, it broke all to bits in his fingers. So then there was more applause. Then he showed us the mango trick, which, they tell me, is very common in India too. He planted a mango-pip in the hard clay, making one of the crowd water it himself, to show that there was no trick in that, and then put a

cloth over it. Presently, he took it off, and there was the first shoot just above the earth. The next time he uncovered it, the thing had shot up some height, and had got a blossom on it. The third uncovering showed us the fruit just forming; and at the fourth, it was already ripe, and he gave us bits of it to taste.—*The Boy-Slave in Bokhara.*

VEGETABLE VERSUS ANIMAL FOOD.—The arguments adduced by our authors to prove the superiority of vegetable diet in the production of muscular strength are based, of course, on observation and experience. Referring to the statistics collected by means of a series of experiments instituted and conducted some years since by Dr. Forbes of Edinburgh, we find that a number of English, Scotch, and Irish laborers, of the age of twenty-five, being submitted to trial in relation to average height, weight, and strength, the superiority in all three qualifications was adjudged to the Irishmen, the Scotchmen occupying the next place, and the Englishmen coming last in the category. It was then ascertained that the latter had been accustomed to a mixed diet of flesh and bread, the Scotchmen principally to oatmeal porridge, and the Irishmen to an exclusively potato diet. Sir Francis Head informs us that immense loads are carried by South American miners, who feed entirely on grain and pulse. Lord Heathfield, who defended the fortress of Gibraltar with consummate skill and persevering courage, was well known for his hardy dietetic habits. He neither ate animal food nor drank wine; his constant diet being bread and vegetables. "The Laplanders," says Dr. Lambe, "are of a dwarfish stature. It may be thought that this is the effect of their polar cold. But we find interspersed among them, and inhabiting the same bleak latitudes, numerous families of industrious Finns, who cultivate the earth, and live on such meagre produce as it affords. The Laplanders subsist on animal oil and flesh, and as a result are stunted and diminutive alike in body and intelligence. The Greeks of old days are associated in our minds with all that the world holds best of valor and of strength. These splendid heroes—the defenders of Thermopylae, the champions of Salamis and Marathon—were from infancy nourished on the plainest vegetable fare. The athletes who took part in the muscular games of Greece were also trained entirely on grain and vegetable food. At the Gymnasia, where this training was undergone, the regimen was very severe. The only aliments allowed were dried figs, nuts, cheese, and a coarse bread. Later on, when the reign of luxury had corrupted these simple habits, a portion of flesh was intro-

duced into the bill of fare permitted to the athletes. But it was soon found that the free use of this kind of aliment made them abnormally stupid and senseless. The diet of the soldiers of the Roman Republic, in its palmiest and manliest days, was also almost exclusively vegetarian.—*Westminster Review*.

SCOTT'S LITERARY EARNINGS.—The total of Scott's earnings by his pen has been estimated at £250,000, and the daily value of the "task" which he set himself when at work upon "The Life of Napoleon," averaged £36 a day. It must be recollected, however, that Scott was then working double tides, as he called it—that is, six, seven, eight, and ten hours a day. But the best way of testing the value of Scott's work is to compare it with what one of the ablest and most industrious of the rank-and-file of literature could then make by his pen, when "working like a ditcher." Take Hazlitt. Hazlitt was writing for the *Edinburgh Review* when Scott was at work upon "Woodstock," and yet, working under whip and spur, the utmost that Hazlitt could earn was £5 5s. a day—what is now paid for a *Times* article. "I regularly do ten pages a day," the reviewer tells his lady-love, in one of his letters in "The New Pygmalion," "and this mounts up to thirty guineas a week. So you see I should grow rich at this rate, if I could keep on so; and I could keep on so, if I had you with me to encourage me with your sweet smiles, and to share my lot." That, of course, was hyperbole with Hazlitt. But it was plain matter of fact with Scott, and Scott made by his pen in a week, more than Hazlitt made in a couple of months.—*Gentleman's Magazine*.

THE MOSQUITO.—In its perfect, or winged state, it is about as annoying a creature as can be, but then it must be remembered that the traveller is but a casual intruder in the natural domain of the mosquito, and must expect the consequences of his intrusion. Devouring travellers is not the normal occupation of the mosquito, for hundreds of successive generations may live and die, and not one of them ever see a human being. Their real object is a beneficent one. In their larval state, they live in the water, and feed upon the tiny particles of decaying matter that are too small to be appreciated by the larger aquatic beings, and, by devouring them, purify the water, and convert death into life. Even in our ponds at home, we are much indebted to the gnat larvae for saving us from miasma; while the vast armies of mosquito larvae that swarm along the edges of tropical lakes, and feed upon the decaying substances that fall from the herbage of the banks, purify at the same time the water and the atmosphere, and enable

human beings to breathe with safety the air in which, without their aid, no animal higher than a reptile could have existed.—"Insects Abroad," by the Rev. J. G. Wood.

EXERCISE FOR CHILDREN.—Slow walking is of but little use to any one as a sanitary measure; it should be quick and brisk. Such large numbers of the children of our towns appear to be almost shut up to walking as the only out-of-door exercise that they can take, that it is one by no means to be despised, but rather to be made the most of; and where, as in the country, a walk can be made to include all sorts of games—leaping, running, climbing, etc.—nothing could be better. But still, for a large majority of English boys and girls, the usual tame "constitutional" is not enough. It does not afford a sufficiently wide outlet for the boiling over of their fun and vitality; neither does it equally exercise and develop all the muscles of their frame, those of the arms, back, chest, and abdomen being left almost inactive. To insure these two essentials we must give them games and sport, out of which, if rightly directed, double the enjoyment and double the hard work is to be got. Even the boisterous merriment and noise of these pursuits is good for them physically. How the chest is expanded, and the lungs exercised and strengthened, by the shouting and free and loud use of the voice that always is heard throughout the games of childhood and youth! By their very noisiness they are unawares making use of a very important means of health.—*The Management of Infancy and Childhood in Health and Disease*.

THE THIRSTY DESERT.—The road we were following was broad and well beaten. It was a regular caravan route, and bore many marks of the passage of the Grand Duke Nicholas; amongst the rest were prominent the bodies of dead camels that had fallen by the wayside from exhaustion. An hour's gallop brought us up to my caravan, which was plodding lazily along. It had been augmented by the addition of two horses and a Kirghiz carrier, with the mail which Captain Hiezing had intrusted to my care. Now we enter for the first time that part of the desert which offers the greatest danger to the traveler, and surrounds him with the greatest horrors. The friendly rivers and the frequent wells and pools of water have been left behind. Yet the face of the country is fair. Gentle elevations roll off in every direction, covered with masses of verdure of a dark rich green, that rival in exuberance the luxuriant carpet of an American prairie; and the sun, shining down from an unclouded sky, turns the spots of yellow sand, seen here and there, into patches of glorious golden light. But all this

beauty is deceptive. These gentle hills are only sand, and the verdure which clothes them hides horrors as great as those covered by the roses that twine themselves over sepulchres. Blossoms shoot up, ripen, die, and rot, in the course of a few days. The verdure consists of but a rank soft weed that breaks out into an eruptive kind of flower, which, dropping off at the slightest touch, emits a most offensive odor. Beneath the broad leaves lurk scorpions, tarantulas, immense lizards, often five or six feet long, turtles and serpents, and the putrifying bodies of dead camels. Once lost in this desert ocean, without guide or water, you may wander for days, until you and your horse sink exhausted to die of thirst, with the noxious weed for bed, winding-sheet, and grave.—*Campaigning on the Oxus, and the Fall of Khiva.* By J. A. MacGahan.

GERMAN SUPERSTITION.—In the Hartz mountains, and on the Rhine, there are so-called Judas fires; in South Germany, and particularly the Bavarian Highlands, we find the Easter and St. John's fires. The former are lighted on Easter Eve, at the time when the resurrection is considered to have been accomplished. On the 23d of June the mountains are blazing with the midsummer fires. Some days previously boys go about from house to house collecting wood, and singing:

If here an honest man doth live,
A faggot he will gladly give:
Two faggots and two sticks, that so
Our fire may bravely glare and glow!

Every household must contribute its share, or else the bauerin will find her hearth unproductive during the year. The flame itself possesses prophetic, saving, healing, and consecrating powers. Its height foretells the growth of the next crop of flax; whoever jumps over the fire will not suffer from sun-stroke, rheumatism, or fever throughout the year. It is a universal custom to drive sick cattle either over the smouldering embers, or else through the flame, in order to restore them to health, and to preserve them from witchcraft, accident, and pestilence. But the most important ceremony is when the youths and maidens leap through the fire, for that is a matter of heart and hand. The mere invitation is a public sign of wooing, and acceptance shows that the suitor is favorably received. One, who already feels pretty certain of his reception, approaches the maiden of his choice, clasps his hands, and sings—

Above my head, below my head,
My hat I gaily swing,
The girl that I love, now with me,
Through the fire must spring!

If he receives her hand as a token that she is willing to go through fire with him, as well as through life, the couple run hand-in-hand

towards the flame, and attempt to spring over or through it. A successful spring is a sure sign that the two young people belong to one another; their love has been hallowed by fire. But should one chance to fall or stumble, something will probably cause their separation. The flickering or smoking of the fire signifies that trials are in store for the newly-formed alliance; but when the flames rise up high and clear during their leap, or crackle as though rejoicing over the agile pair, then the future life may be commenced at once in peace and security, for the midsummer fire has foretold prosperity.—*All the Year Round.*

A SLEEP SONG.

Sister Simplicity,
Sing, sing a song to me,
Sing me to sleep:
Some legend low and long,
Slow as the summer song
Of the dull Deep.

Some legend long and low,
Whose equal ebb and flow
To and fro creep
On the deep marge of gray
'Tween the soul's night and day,
Washing awake away
Into sleep.

Some legend low and long,
Never so weak or strong
As to let go
While it can hold this heart
Without sigh or smart,
Or as to hold this heart
When it sighs "No."

Some long low swaying song,
As the swayed shadows long
Sway to and fro,
Where thro' the crowing cocks
And by the swinging clocks
Some weary mother rocks
Some weary woe.

Sing up and down to me
Like a dream-boat at sea,
So and still so;
Float thro' the "then" and "when,"
Rising from when to then,
Sinking from then to when
While the waves go.

Low and high, high and low,
Now and then, then and now,
Now, now;
And when the now is then and when the then
is now,
And when the low is high and when the high
is low,
Low, low;
Let me float, let the boat
Go, go;
Let me glide, let me slide
Slow, slow;
Gliding boat, sliding boat,
Slow, slow;
Glide away, slide away
So, so.